

Cornwall District Fisheries Management Plan:

Fisheries Management Plan

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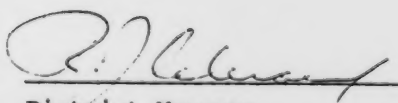
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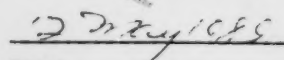
PREFACE

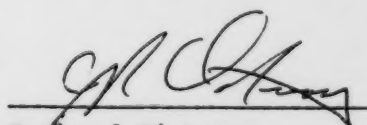
The purpose of the Cornwall District Fisheries Management Plan is to outline the long-term direction of fisheries management efforts in the Cornwall District for the period 1987-2000. Further, it provides a way to measure the accomplishments of the district fisheries management program by both the managers and the public.

This document briefly describes the planning framework followed and provides an overview of the fisheries resources of the Cornwall District, including significant information affecting their management. Fisheries management objectives and targets are stated and strategies and tactics to meet them are identified. An implementation schedule describes in detail how, when and where fisheries management activities in the five year period 1987-1991 are planned to be carried out. The actual timing and cost of specific projects will be determined in annual work plans.

Yearly updates of the implementation schedule and periodic revisions will keep the District Fisheries Management Plan current and responsive to changing needs and conditions.


District Manager


Date


Regional Director

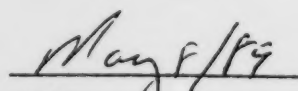

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TABLE OF CONTENTS

	Page
PREFACE	(i)
Table of Contents	(ii)
List of Maps, Figures and Appendices	(iii)
1.0 INTRODUCTION	1
1.1 Purpose	1
1.2 Planning Process	1
2.0 DISTRICT FISHERIES PERSPECTIVE	5
2.1 Physical Resources	5
2.1.1 Large Reservoirs	5
2.1.2 Inland Lakes and Public Fishing Areas ..	6
2.1.3 Inland Rivers and Streams	7
2.2 Fisheries Resources	7
2.2.1 General Description of Fisheries Resources	7
2.2.2 Potential Yield From District Waters ...	10
2.3 Resource Use and Projections	13
2.3.1 Present Use	13
2.3.1.1 Sport Fishing	13
2.3.1.2 Commercial Fishing	14
2.3.1.3 Baitfish Industry	15
2.3.1.4 Akwesasne Food Fishery	16
2.3.1.5 Tourist Industry	16
2.3.2 Projected Use	17
2.3.2.1 Sport Fishing	17
2.3.2.2 Commercial Fishing	18
2.3.2.3 Baitfish	19
2.3.2.4 Akwesasne Food Fishery	19
2.3.2.5 Tourism Industry	20
2.4 Fisheries Management Issues	20
2.4.1 Fish Community Problems and Issues	21
2.4.2 Habitat and Water Quality Problems and Issues	26
2.4.3 Social Problems and Issues	30
2.4.4 Public Awareness and Scientific Knowledge Issues	34
3.0 MANAGEMENT DIRECTION	36
3.1 General Fisheries Management Objective	36
3.2 Target - Driven Management	36
3.3 Specific Fisheries Objectives	36
3.3.1 Sport Fish Objectives	37
3.3.1.1 St. Lawrence and Ottawa Rivers Objective	38
3.3.1.2 Yellow Perch Objective	45
3.3.1.3 Inland Waters Objective	47
3.3.2 Commercial Food Fish Objective	50
3.3.3 Baitfish Objective	53
3.3.4 Endangered, Threatened and Rare Fish Species Objective	54
4.0 IMPLEMENTATION SCHEDULE	56
ACKNOWLEDGEMENT	85
REFERENCES	86
GLOSSARY	88

LIST OF MAPS AND FIGURES

	Page
Regional Setting Map	4
Table 1 Target Refinement	11
District Fishing Map	Enclosure on back cover

LIST OF APPENDICES

Appendix 1 - A List of all Fisheries Planning Documents - Cornwall District.	93
Appendix 2 - Highlights of Public Consultation Cornwall District Fisheries Management Plan.	96

1.0 INTRODUCTION

1.1 Purpose

The Cornwall District Fisheries Management Plan describes a management program based on providing the most effective and practical solutions to the issues facing local fisheries resources. The contents of this plan reflect the various phases of public consultation and inter-agency review which occurred between February 1987 and March 1988.

1.2 Planning Process

This plan provides very specific and local management direction. It takes its direction from a set of hierarchical plans. Overall direction is provided by strategic plans at the provincial level such as "A Framework for Resource Management Planning in MNR, 1986" and the "Southern Ontario Co-Ordinated Program Strategy". These broad guidelines were used to prepare the Cornwall District Land Use Guidelines (1983) which serve as a link between the general program direction and the resource management planning level (i.e. the District Fisheries Management Plan)

Not only was the District Fisheries Management Plan directed by the Land Use Guidelines but more scientific direction was derived from the Strategic Planning for Ontario Fisheries (SPOF). Principles from SPOF include concepts such as fish community management, the equitable allocation of fisheries resources, experimental management, the user-pays philosophy and managing to the sustainable yield. The underlying foundation of SPOF is the protection of the resources needed to sustain the benefits which the resources provide.

7

This District Fisheries Management Plan is the fourth in a set of documents produced during the District Fisheries Planning Process. The first (A Background Report and Optional Management Strategies and Tactics) was a 300-page document describing the district's fisheries resources, their status, use and limitations and a wide variety of future management options. This is an internal document which was available for public review.

The second document (A Summary of Background Information and Optional Management Strategies and Tactics) was produced in January, 1987. It is a 90-page public document which summarizes the Background Report and it formed the basis for the first round of public review.

A draft District Fisheries Management Plan was prepared in late 1987. Based on the first round of public, inter-agency and internal review, the original set of 300 optional management strategies and tactics was reduced to a group of the most efficient, effective and preferred tactics. This draft Plan was again subjected to public, inter-agency and internal review. Based on these reviews, this final plan has now been developed and approved.

The Cornwall district Fisheries Management Plan contains four sections. The Introduction and Fisheries Perspective sections describe the planning framework and fisheries resource information. The Management Direction section describes the district's fisheries targets and objectives as well as the specific management directions contained in the strategies and tactics. The Implementation section describes in detail how, when and where the first 5 years (1987-1991) of the proposed program will be accomplished.

A list of all documents produced during the planning process is provided in Appendix 1. All of these documents are available for public scrutiny. A Summary of Public Consultation

- District Fisheries Management Plan 1987-2000 Cornwall District is available for public scrutiny at the Cornwall District Office. A precis of the Summary of Public Consultation is presented in Appendix 2 (Highlights of Public Consultation - Cornwall District Fisheries Management Plan).

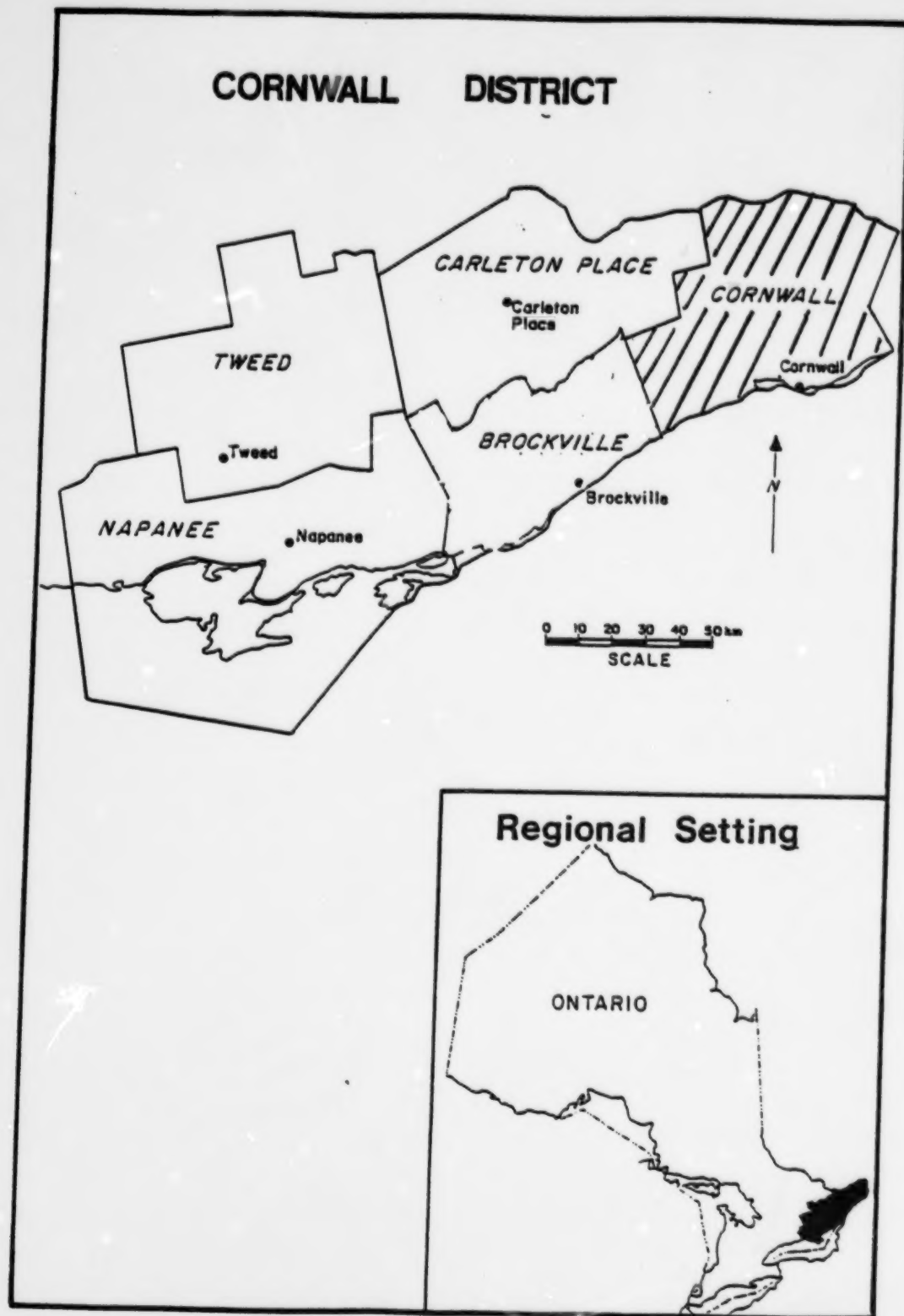


Figure 1.

District Boundaries and Regional Setting

2.0 DISTRICT FISHERIES PERSPECTIVE

2.1 Physical Resources

The Cornwall District, the area covered in this plan, comprises Stormont, Dundas, Glengarry, Prescott and Russell Counties and the waters of the St. Lawrence and Ottawa Rivers bordering those counties. The District is bordered by New York State and the Province of Quebec to the south, Quebec to the east and north and the OMNR districts of Brockville and Carleton Place to the west. The total land area is 5,594 km².

The climate is continental and the soils are primarily clays, loams and sands underlain by limestone. The topography is flat giving rise to many inland streams and rivers which are notably slow-moving and turbid as well as prone to flooding and low summer base-flows. The alkaline soil conditions ensure that the streams are not acidic.

2.1.1 Large Reservoirs

Two large rivers, the Ottawa and the St. Lawrence, constitute the most significant waterbodies in the District (97.8% by area). The Moses-Saunders Dam, finished in 1958, created the Lake St. Lawrence reservoir which extends upstream to the Iroquois Control Dam. Dams at Beauharnois, Quebec were responsible for the flooding of the Lake St. Francis reservoir which extends upstream to the Moses-Saunders Dam. The Ottawa River is interrupted by the Carillon Dam situated at the Ontario/Quebec boundary.

The effect of local geology and hydrography on the fisheries of the major waterways is complex and indirect. Many inland rivers and streams are important spawning and nursery habitat for a number of fish species that are resident in the larger waterways. Hence, the effect of geology and hydrography on these streams has an effect on the fisheries of the major waterbodies.

7

Lake St. Francis is shallow, with a mean depth of 5.5 m and a maximum depth of 22 m. Ontario controls 7,380 ha while Quebec (16,319 ha) and New York State (674 ha) control the remainder. The lake is very productive with respect to fish because of its shallow nature, quick flushing rate, the fast currents and stable water levels. Aquatic vegetation is prolific and has stabilized somewhat in the last 10 years.

Lake St. Lawrence is deeper (mean depth 8.0 m) with much greater water level fluctuations (up to 2.0 m). The productivity of the system is much lower than Lake St. Francis due to the drawdown impact. The total area is 12,950 ha of which 6,150 ha are controlled by Ontario. The general water quality in both Lake St. Francis and Lake St. Lawrence is controlled by the characteristics of the water leaving Lake Ontario although some local effects are pronounced, particularly in Lake St. Francis.

The development of the St. Lawrence River for power generation and navigation was the dominant historical factor affecting the fish communities. The change in physical habitat and water flow patterns substantially affected the riverine fish community by creating the two reservoirs.

The Ottawa River portion of Cornwall district (Rockland downstream to the Carillon Dam) covers 4,629 ha. The Ottawa River is deep (mean depth 7.6 m and maximum depth 94 m), with fast currents and high turbidity. Dissolved oxygen levels are low because of the high load of organic material. The major tributary on the Ontario side is the South Nation River. Productivity is severely limited in the river by the turbidity, oxygen levels and depth.

2.1.2 Inland Lakes and Public Fishing Areas

Cornwall District has only three lakes: Loch Garry (Kenyon Township), George Lake (Alfred and North Plantagenet Townships) and Black Lake (North Plantagenet Township). The latter two lakes are both connected by short streams to the Ottawa River. The District has a large number of quarries, ponds

and potholes that support both natural and privately-stocked fish populations. There are 2 small provincial fishing areas (quarries) that support artificial put-and-take rainbow trout fisheries.

2.1.3 Inland Rivers and Streams

Two major river systems drain the Cornwall District. The South Nation River flows into the Ottawa River and drains most of the northern portion of the District while the Raisin River drains a large portion of the southern half of the District into the St. Lawrence (Lake St. Francis). A number of smaller rivers, the Rigaud which drains northeast to the Ottawa River, the Riviere au Baudet and the Riviere Delisle which drain southeast to the St. Lawrence, plus numerous streams, creeks and drainage ditches are responsible for the rest of the drainage in the District.

The overall effect of geology and hydrography on fish habitat in inland waters is that although one might expect good production due to adequate supplies of nutrients and reasonably favourable pH levels, the low flows, water quality problems (phosphorous, nitrates, high temperatures and low oxygen) and the large quantity of suspended solids (leading to turbidity problems and low primary production) have depressed fish production considerably. The effect of these natural phenomena are compounded many times by human interference in the watersheds such as alterations of flow for the purposes of low flow augmentation, flood control and agricultural drainage.

2.2 Fisheries Resources

2.2.1 General Description of Fisheries Resources

The Lake St. Francis community is dominated by yellow perch. The perch population appears to have been relatively stable over the last 10 years although recent assessment work in

7

1986 indicates the potential for strong year-class fluctuations (fluctuations in abundance). The fish grow quickly and mature early and the estimated annual yield of just under 14 kg/ha/yr is one of the highest in the province due to abundance of food and excellent habitat. All indicators point to a population producing at its capacity.

Northern pike are more abundant than in the other two reservoirs although older fish are rare. The walleye population appears to be stable based on subjective information gathered during the Raisin River spawning run. The smallmouth bass population is thought to be small. The muskellunge population appears to be increasing slightly based on angler reports. The sunfish population, important to the commercial fishery, appears to be relatively abundant, although bullhead abundance is not high.

Yellow perch, alewife, johnny darters, rock bass and crayfish are the predominant forage species for pike, walleye and bass. Harvest by anglers and commercial fishermen is not a factor controlling lake populations with the possible exception of perch and bullhead.

The Lake St. Lawrence community is similar to the Lake St. Francis community in species composition although smallmouth bass are much more abundant. The walleye population increased quickly between 1983 and 1985, but between 1985 and 1987 the population stabilized somewhat. The smallmouth bass population declined between 1983 and 1985 but was stable between 1985 and 1987.

Northern pike are less abundant than in Lake St. Francis although the population appears to be stable. The status of the muskellunge and largemouth bass populations is unknown, although these species are certainly not abundant. Carp, brown bullhead and white and redhorse suckers are common. The forage base for the walleye, pike and bass consists of alewife, yellow perch, crayfish and johnny darters. The productivity is lower than in

Lake St. Francis as reflected in the lower condition factors and slower growth of perch, smallmouth bass and pike. Harvest by anglers is not a factor in limiting these populations but physical habitat is.

There is a small community of rainbow trout, brown trout and salmon in Lake St. Lawrence resulting from the movement of a few fish downstream from Lake Ontario.

The Ottawa River community is slightly different than the St. Lawrence. Yellow perch, walleye and northern pike are less abundant and sauger (which do not occur in the St. Lawrence) are more abundant than walleye. The growth of walleye, pike and perch is slower than in the St. Lawrence reflecting the poor productivity (limited by water quality and physical habitat). The populations are generally late-maturing and the age-class structure, biased to older fish, reflects the low harvest rate. Carp, channel catfish, white suckers and brown bullhead are abundant and the major forage species are similar to the St. Lawrence except alewife are not present. The sturgeon population is being studied because the population is suspected of being in decline. Muskellunge are present in the Ottawa River but the status of the population is unknown.

There are three inland lakes but only Loch Garry has a substantial sport fish community (largemouth bass). Periodic winter kills are a major factor limiting the largemouth bass population.

The only coldwater communities (trout/salmon) in the district (aside from the migrants in Lake St. Lawrence) are the artificial rainbow trout fisheries in the two Provincial Fishing Areas. These small quarries are stocked annually with several thousand rainbow trout.

The inland river and stream fish communities are similar to the St. Lawrence and Ottawa Rivers. Walleye, northern pike and smallmouth bass are the prominent predators with yellow perch, rock bass, sunfish, brown bullhead and white suckers also abundant. The distribution of the sports fish species is limited to the deeper, permanent-flow sections of the larger rivers (i.e. South Nation, Raisin). Alterations of physical habitat, the

7

intrinsic characteristics of the streams and the water quality are major limiting factors. There are no coldwater streams of sufficient quality to support inland trout populations.

2.2.2 Potential Yield From District Waters

Potential yield (simply stated) is the kilograms of sport fish, by species, that could be removed annually from a waterbody without causing a reduction in the abundance of that species if there were no factors limiting the productivity of the waterbody. Productivity is a measure of a waterbody's ability to annually support fish. The potential yield is therefore a yardstick against which the present harvest can be measured. If more fish (kg's) of a certain species are removed annually than the waterbody can produce, then that species is considered to be over-exploited (over-harvested). If a fishery is over-exploited it is analogous to a person living off the interest plus some of the principal of an investment. The interest alone would be comparable to the potential yield.

One further consideration is that the waterbody itself may be under-producing. This can occur when certain factors such as water quality problems or the loss of physical habitat occur. In these situations, the waterbody is not capable of producing the fish that it should be.

The district has some basic problems with underproducing waters. Lake St. Lawrence does not produce fish as well as it should because of the historical impacts of the Seaway construction coupled with the ever-present water level fluctuations. The Ottawa River is also an underproducing system due to water quality problems (i.e. high turbidity, low oxygen levels). The major inland lake (Loch Garry) has production problems because of periodic winter kills. The inland rivers and streams also suffer from poor production due to water quality and habitat considerations.

The calculated potential yields for the district waterbodies are shown by species (Table 1).

TABLE 1: Target Refinement

	CURRENT USE ^a		PROJECTED USE ^b		DLG TARGET ^c		POTENTIAL YIELD ^d		INTERIM REFINED TARGET ^e	
	kg/dsz.	Angler-Days	kg/dsz.	Angler-Days	kg/dsz.	Angler-Days	kg/dsz.	Angler-Days ^f	kg/dsz.	Angler-Days
SPORT FISHERY										
<u>Users</u>										
Resident	149,860	142,600	172,343	163,980			252,060	523,121	170,688	156,518
Non-Resident	34,440	26,400	39,607	30,360			57,927	96,853	31,602	28,979
<u>Species Assemblages</u>										
Walleye	26,300		30,250				61,955 ^g	123,910	30,250	
Yellow Perch	112,100		128,915				110,480 ^h	220,960	110,480	
Shallmouth Bass	16,600		19,075				46,858	93,716	19,075	
Northern Pike	25,900		29,900				71,161	142,322	29,900	
Largemouth Bass	400		460				4,569	9,138	460	
Muskellunge	N/A		N/A				3,725	7,450	1,000 ⁱ	
Sauger	N/A		N/A				6,814	13,628	6,800 ^k	
Perfish/Bullhead	2,100		2,425				2,425 ^l	4,850	2,425	
Rainbow Trout	900		1,025				2,000	4,000	2,000	
SUB-TOTAL	184,000 ^{aa}	169,000	212,000	194,000	326,000	652,000	310,000	620,000	202,000	186,000
COMMERCIAL FISHERY										
<u>Baitfish</u>										
Sub-total	54,000		62,000		75,000		N/A ¹		62,000	
<u>Roofish^m</u>										
<u>Species Assemblages</u>										
Perfish/Bullhead	48,616		81,000 ⁿ				40,510 ⁱ		40,510	
Carp	21,638		80,000 ^o				80,000		80,000	
Bil	9,385		25,300 ^p				25,300		25,300	
Yellow Perch	811		8,000 ^q				8,000		8,000	
White Sucker	7,238		15,000 ^r				15,000		15,000	
Sauger	795		1,700 ^s				1,700		1,700	
Channel Catfish	217		500 ^t				500		500	
SUB-TOTAL	89,000		212,000		68,000		171,000		171,000	
SUBSISTENCE FISHERY^p										
<u>Species Assemblages</u>										
Yellow Perch	10,000		11,500 ^u				11,500		11,500	
Walleye	4,000		4,600 ^v				4,600		4,600	
SUB-TOTAL	14,000		16,000				16,000		16,000	
TOTALS										
kgs. of fish	287,000		440,000		394,000		497,000		389,000	
dsz. of baitfish	54,000		62,000		75,000		N/A		62,000	
angler-days		169,000		194,000		652,000		620,000		186,000

a) Current Use - resident/non-resident percentages from Table 12b for angler-days and harvest (Bekersley et al. 1986).

b) Projected Use - based on a 15% increase to the year 2000 (see text "Projections") - see Tables 20a, 20b (Bekersley et al. 1986).

c) DLG Targets are from Cornell District Land Use Guidelines which only provide grand totals.

d) Potential Yield (kg) as per Table 10 - Please note that walleye, yellow perch, bullhead and baitfish have special flags (footnotes g, i, l, q) (Bekersley et al. 1986).

e) Interim Refined Targets are a the lower number of either the Projected Harvest or the Allowable Yield for each species. The refined targets total is the sum of each species target. Note that the Target angler-days are calculated using the existing catch standard (1.09 kg/angler-day) (Bekersley et al. 1986).

f) Allowable Yield (angler-days) calculated on the basis of .5 kg/angler-day as a quality standard as per the guidelines. This is a much lower standard than is currently enjoyed (1.09 kg/angler-day) by district anglers. See text "Target Refinement" (in Bekersley et al. 1986)

g) The walleye and yellow perch total allowable yields have been subdivided into subsistence and angling allowable yield (walleye) and subsistence, angling and commercial allowable yield (yellow perch). See "Target Refinement" in Bekersley et al. for explanation (1986).

h) N/A - these data are not available (even subjectively).

i) The perfish/bullhead allowable yield has been subdivided into angling and commercial allowable yield. See "Target Refinement" for explanation (Bekersley et al. 1986).

j) The muskellunge target of 1,000 kg is conservative (i.e. less than the allowable yield) because of the uncertainty regarding this species' current status.

k) The sauger target is assumed to be the allowable yield.

l) Baitfish allowable yields cannot be estimated.

m) Roofish current use estimates are based on the average of the 1994 and 1995 harvests (Bekersley et al. 1986).

n) Based on the existing quotas including 6000 kg additional yellow perch in Lake St. Francis (Bekersley et al. 1986).

o) Based on estimates generated by district staff because these species have unlimited quotas; see "Projected Use-Commercial Fisheries" in Bekersley et al.(1986).

p) This is the Neversene subsistence fishery; see "Current Use - Subsistence Fishery" in Bekersley et al.(1986).

q) Projection based on a 15% standard increase in use (Bekersley et al. 1986).

aa) Note - all sub-totals and totals have been rounded to the nearest thousand.

The calculated potential yield (Table 1) for Cornwall District totals 497,000 kg of fish per year. Almost 90% of this potential yield is associated with the Ottawa River and Lake St. Lawrence and Lake St. Francis (classed as reservoirs). The remainder is split between the inland rivers and streams (7.5%), the inland warmwater lakes (2.5%) and the Provincial Fishing Areas (0.5%).

Of this total yield, 310,000 kg could be potentially allocated to the sport fishery including the commercial angling fishery for yellow perch in Lake St. Francis. Species included are walleye, smallmouth bass, northern pike, yellow perch, largemouth bass, muskellunge, sauger, panfish and brown bullhead. The commercial fishery could be allocated 171,000 kg of the remaining potential yield. Species included are panfish, brown bullhead, carp, eel, yellow perch, white sucker, sturgeon and channel catfish. The remaining 16,000 kg could be allocated to the Akwesasne subsistence fishery (yellow perch and walleye). The targets for each fishery are generally less than the potential yield (i.e. 310,00 kg potential yield vs 202,000 kg as the target for the sport fishery) because the targets are generally based on projected use rather than potential yield. Target development is explained more fully in Section 3.2.

The only coldwater fish yield (trout) is from the Provincial Fishing Areas. The private fishing areas are not included in the yield calculations because the yield is controlled artificially by stocking.

The potential yield for the sport fishery by species is comprised of yellow perch (36%), walleye (20%), northern pike (23%) and smallmouth bass (15%). Muskellunge, largemouth bass, sauger and rainbow trout make up only a small part of the District's potential yield. Lake St. Francis is much more productive than either Lake St. Lawrence or the Ottawa River.

The relevance of these potential yields is that the ultimate goal for fisheries management is to ensure, by solving the problems limiting production, that the local waters are capable of producing sufficient fish of the appropriate species to meet the future demand. In addition, in situations where species are being over-harvested, the ultimate goal is to adjust the harvest so it does not exceed the potential yield, thereby ensuring the long-term maintenance of the fisheries resources.

2.3 Resource Use and Projections

2.3.1 Present Use

2.3.1.1 Sport Fishing

The total number of anglers who fish in local waters is estimated to be 36,000 (Background Document - Cornwall District Fisheries Management Plan). Of these, 30,500 are residents and 3,000 are licenced non-residents. There are an additional estimated 2,500 Quebec anglers who do not require a licence to fish the Ontario portion of Lake St. Francis and the Ottawa River. Of the 30,500 Ontario resident anglers, 26,000 are residents of Cornwall District and 4,500 live elsewhere in Ontario.

The total number of days spent fishing in the district is approximately 169,000 (Table 1). This fishing effort is mostly by local residents (75%) followed by non-residents from Quebec (14%), non-local Ontario residents (9%) and other non-residents (2%).

The three large reservoirs receive most of the effort (83%) with Lake St. Francis the most heavily fished (50%), followed by Lake St. Lawrence (21%) and the Ottawa River (12%). The remaining 17% of the angling effort is split between the inland rivers and streams (10%), the Provincial Fishing Areas (6.8%) and the inland lakes (0.2%).

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An estimated 995,000 fish weighing over 184,000 kg are caught annually in the District (Table 1). The bulk of this harvest (in kg) is perch (61%) with walleye (14%), pike (14%) and smallmouth bass (9%) being of secondary importance. The remainder is comprised of other species such as muskellunge, bullhead, sauger, largemouth bass, panfish and rainbow trout.

Again, Lake St. Francis provides most of the harvest (81%) followed by Lake St. Lawrence (11%), the Ottawa River (6%), the inland rivers and streams (1%), the P.F.A.'s (0.7%) and the inland lakes (0.3%).

It is important to note that all of these use estimates are based on extrapolations from existing data and may be subject to fairly large variations.

2.3.1.2 Commercial Fishing

There are 7 commercial fishermen in the district who harvested more than 88,590 kg of commercial fish worth \$88,351 (an average for 1984 and 1985). The commercial fishery has been reasonably stable over the past decade in terms of the number of fishermen although the harvest of each species has varied annually due to fishing effort, market considerations and contaminants.

Most of the commercial fish harvest and value comes from Lake St. Francis (3 fishermen) with an average harvest (84-85) of 60,493 kg worth \$60,112. Species captured in order of harvest weight were bullhead, carp, sunfish, American eel, white sucker and crappie. The Ottawa River's three fishermen accounted for most of the remaining harvest of 25,548 kg valued at \$31,576 (84-85 average). Bullhead, carp, yellow perch and sturgeon are the main species harvested although small quantities of eel, channel catfish and sunfish were also taken. The only commercial fishery in Lake St. Lawrence is a fall fishery for bullhead and carp. One fisherman harvested 2,550 kg worth \$1,664 (84-85 average). There are no inland commercial food fisheries.

The commercial fishermen employ a variety of fishing gears. Hoop nets are used to harvest all species except sturgeon, carp and eels (Ottawa River). Large-mesh gill nets (8-10") are used for sturgeon and carp while American eels in the Ottawa are taken by hook lines.

The commercial fishery has recently (1984) undergone a modernization operation so that now the fishermen are provided with a species quota (the maximum weight of fish a fisherman may harvest in any one year). In this way, harvest can be controlled for resource management reasons to promote the maintenance of the species required by the commercial fishery.

There is another commercial fishery in the District. Yellow perch are caught by anglers and sold commercially. No commercial licence is required for this activity at this time. The bulk of this fishery occurs in Lake St. Francis with minimal activity in Lake St. Lawrence and the Ottawa River. There are thought to be several hundred anglers who participate in this fishery each year but exact numbers are not available. The harvest associated with this fishery is included in the sport fish harvest estimates for yellow perch because the size of the harvest cannot be determined directly. Indirect and conservative estimates, based on restaurateurs' estimates of perch sold indicate the market absorbs about 46,000 kg annually (45% of the yellow perch total angling harvest from Lake St. Francis). An unknown percentage of this harvest originates from the Quebec waters of Lake St. Francis.

2.3.1.3 Baitfish Industry

In 1985, there were 45 licenced baitfish dealers, 38 of whom also held baitfish harvester licences. The harvest was approximately 54,000 dozen bait fish worth a reported \$31,000 (wholesale). The species harvested include lake and creek chubs, emerald shiners, white suckers, dace, bluntnose minnows and golden shiners. The baitfishermen are not presently assigned to particular waterbodies so an accurate harvest estimate by

7

waterbody is not available. It is estimated however, that the bulk of the harvest comes from Glengarry County and Lake St. Francis. The Ottawa River, Lake St. Lawrence and a variety of inland streams provide the remainder of the baitfish harvest.

2.3.1.4 Akwesasne Food Fishery

No current use data nor projected population data are available for the Mohawk Council of Akwesasne. Rough estimates provided by H. Lickers (Env. Division, Akwesasne) in 1982, indicate that some of the current harvest of walleye (4,000 kg) and yellow perch (8,000-10,000 kg) comes from the Ontario portion of Lake St. Francis. This harvest is a food fishery, not recreational in the strictest sense. The number of participants in the fishery is 20-40. Species such as sturgeon are also harvested but harvest information is not available.

2.3.1.5 Tourist Industry

There are 19 campgrounds in the Cornwall District, concentrated along the St. Lawrence and Ottawa Rivers. Ten are Provincial Parks including 9 St. Lawrence Parks Commission parks along the St. Lawrence River. The remaining 9 are private campgrounds. There are 12 marinas, 8 on Lake St. Francis, 3 on Lake St. Lawrence and 1 on the Ottawa River. There are many motel/hotel operations in the district but only a few that appear to cater to fishermen (i.e., providing boat rentals, fishing plan packages and/or boat rentals).

The tourism industry in the district is represented by the Seaway Valley Tourist Association, based in Cornwall.

Tourism-related angling is not a major part of the District participation in fishing (25% of the local angling is by non-locals) however, it is probably important to certain tourism sectors as a part of the local tourist draw.

2.3.2 Projected Use

In order to determine the direction of future fisheries management programs, it is essential to estimate the future demand (projected use) on the fisheries resources. Items such as the required quantity of fish by species, the quality of the angling and the angling effort expected in the future all require approximation in order to determine which management initiatives should be implemented in order to meet future requirements. Demand forecasting for fisheries is, by nature, a difficult process due to the fluctuations in resource availability and changes in general recreational use patterns. In light of this, the projected figures must be considered to be broad approximations reflecting, in general, an expansion in both use and demand equivalent to the projected population increase. The projections in this plan are all to the year 2000.

2.3.2.1 Sport Fishing

All of the projected sport fishing measures of harvest, use and participation rates are based on a 15% increase to the year 2000. This 15% increment matches the projected population increase in Southern Ontario during this period. The other assumption which has been made is that anglers will not accept a lower catch standard (i.e. the number of fish, on the average, an angler catches per hour) than is currently enjoyed. For Cornwall District this is approximately 1.09 kg of fish per 4 hours of angling (1 angling day or opportunity), regardless of target species or angler origin. Making this assumption allows the projected use and harvest to be forecasted by increasing the current effort and harvest by 15% across the board.

The projected use (2000) is 194,340 angler-days with a corresponding harvest of 211,950 kg of fish (Table 1). Using a flat projection of 15% means that all the projections for each

7

species, waterbody and angler-type will reflect the present situation (i.e. perch will remain the most heavily-harvested species, Lake St. Francis will be the most heavily used, etc.).

As Table 1 shows, all of the projected species harvests for the year 2000 are less than the allowable yield with the exception of yellow perch. However, this does not mean that the existing resources are capable of meeting the demand. Significant fishery rehabilitation will have to occur to bring our resources back to the point where they are producing the desired species to the required degree. Should the fishery resources be rehabilitated however, our waters are capable of producing fish to the desired extent. The projected overharvest of yellow perch is expected to occur in Lake St. Francis where the heavily fished yellow perch population cannot sustain a 15% increase in harvest.

2.3.2.2 Commercial Fishing

Commercial fisheries projections are particularly difficult because market fluctuations are large and such things as closures and openings of fisheries due to contaminant levels are not predictable. As a first approximation, the projected commercial fish harvests are based on the existing commercial fish quotas. This requires assuming, in the local situation, that contaminant levels in carp, suckers and eel will not prohibit the sale of these fish to the export markets, that the export markets remain viable, that the species currently sold locally (bullhead, sunfish, sturgeon, yellow perch, crappie, channel catfish) remain relatively free of contaminants and the markets remain strong. In addition, the resource availability must remain high, and these fish stocks must remain healthy. In the case of species with unlimited quotas, the projected harvest was set (given the above assumptions) on the basis of what was deemed to be a realistically-sized fishery.

Based on these assumptions, the bullhead, sunfish, carp, sucker and eel fisheries will continue to be the mainstay of the local industry. Lake St. Francis and the Ottawa River will be the major waterbodies fished although a coarse fish fishery in Lake St. Lawrence is included in the projections. The total projected harvest for commercial fish is 211,500 kg (Table 1). This includes an additional 6000 kg quota for yellow perch in Lake St. Francis, allocated as a result of the planning process.

Major factors in these projections are the social conflict and allocation issues. The assumption is made that these fisheries can continue to operate without major conflicts with the sport fishery and that the species harvested continue not to conflict with species targetted by anglers.

2.3.2.3 Baitfish

The projected demand on the baitfish resource is dependent primarily on the increase in the sports fishery. The projected increase in the sports fishery is expected to be 15% by the year 2000 and the baitfish industry is expected to increase by a comparable rate to meet the demand. This would require a baitfish harvest of approximately 62,000 dozen to meet the baitfish demand to the year 2000 (Table 1). Although no estimates are available for the size of the baitfish resource in the district, it is expected that an annual yield of 62,000 dozen is easily sustainable.

2.3.2.4 Akwesasne Food Fishery

Relevant issues include resource use and allocation, land and resource claims, the negotiation of an Indian Fishing Agreement and the modernization process. Currently, the allocation to native people for subsistence purposes is effectively unlimited although the sale of fish caught by this group is not legal. Some recent conflicts have emerged on Lake

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St. Francis between anglers and the native fishermen as a result of an expansion from the areas where native harvest of yellow perch traditionally occurred into areas traditionally used by anglers. Modernization of the commercial fishery will also have no effect on the fishery although it will impose quotas on non-Indian commercial fishermen. Use by the Mohawk Council of Akwesasne food fishery to the year 2000 has been projected at the 15% expansion factor based on estimated harvest for 1982 provided by the Council.

2.3.2.5 Tourism Industry

The projected use of fisheries resources by the tourism industry in the Cornwall District cannot be quantified because of the lack of specific information on fisheries use by that sector. For the purposes of determining projected use, the tourism sector has been included in the sport fishing projected use (section 2.3.6).

2.4 Fisheries Management Issues

There are a number of issues in the district which must be dealt with in order to ensure that the fisheries resources will continue to meet the demands which will be placed on them.

A total of 29 issues were identified in the MNR Background Summary Document (February 1987). During public consultation, including the public meetings and responses provided by the public by other means, no new issues were identified. The public review did amplify on some issues and certainly attached, in terms of response rates, more importance to some issues. A detailed description of the public review is provided in "A Summary of Public Consultation - District Fisheries Management Plan 1987-2000 Cornwall District", available from the Cornwall District Office. The public review did provide some alternate tactics regarding, amongst other things, stocking approaches,

yellow perch management and commercial fish management. These suggestions were included in the tactic evaluation process which led to the selection of tactics included in the fisheries management plan.

The issues which have been dealt with are outlined briefly below. The strategies and tactics outlined in this plan are designed to deal with these issues in an efficient and practical manner which will help achieve the targets and objectives.

2.4.1 Fish Community Problems and Issues

Potential Over-Harvest of Yellow Perch in Lake St. Francis

The best available information on the harvest of perch indicates that the present harvest (112,100 kg) exceeds the potential yield by approximately 8,000 kg/year. The growth rates and age-at-maturity of the perch indicate that the population, while it may not be declining, is producing at capacity. There have been no radical changes recently in the relative abundance of perch. When all of this information is considered together, the conclusion is that the perch population cannot be exploited significantly more than it already is. The public identified the protection and allocation of the yellow perch as the most important issue in the district. The overall public reaction was that illegal harvest activities must be dealt with and that the various fisheries (commercial and subsistence) should be controlled so as not to allow over-exploitation.

During the public consultation for the draft plan, the commercial angling for yellow perch in Lake St. Francis and the expected changes in this fishery emerged as the major issue. Proposed changes to the Game and Fish Act would make the sale of angler-caught fish illegal. This would have destroyed the local supply of perch important to local businesses and tourism. Consequently, the need to maintain this commercial angling fishery was viewed by MNR and the public as a major issue.

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Proposals in the draft plan which would have licenced the commercial yellow perch angling fishery and provided a small commercial hoop net quota were subjected to intense public review. A third round of public consultation was initiated for this issue specifically to present a modified set of management options. The results of this process were carefully considered in formulating the proposed management actions. The continuation of the perch assessment program is a key requirement for finalizing the allocation of perch amongst sport anglers, commercial anglers and commercial hoop net fishermen and the Akwesasne.

Potential Over-Harvest of Sturgeon in the Ottawa River

Sampling information indicates that sturgeon in the Ottawa River may be declining. These slow-growing, late maturing fish are susceptible to over-fishing. The imposition of commercial fish quotas in 1984 may not have been adequate to protect the fishery. Water quality and habitat problems are probably also contributing to the decline, including the construction of the Carillon Dam which has altered flow regimes and may have prevented access to historical spawning areas. The harvest in Quebec waters of the Ottawa River according to Hull Regional staff of the Ministère de Loisir, Chasse et Pêche is a few thousand kgs and they share MNR's concern regarding the sturgeon population.

Potential Over-Harvest of Sunfish and Bullhead in Lake St. Francis

Analysis of commercial catch-per-unit-effort information in 1985 indicates that these populations were declining somewhat, particularly the larger-sized sunfish. The commercial harvest is the main pressure on these species. However, in 1986, there was an increase in the bullhead population, which may indicate a resurgence in the population. The public considered the problem

to be that commercial fishing is responsible for a reduction in angling opportunities for these 2 species for 2 reasons. They cited conflicts during the spring with commercial operators netting too close to creeks and streams (traditional fishing areas). They also felt that fewer fish were available to anglers because the commercial operators had reduced species abundance.

Fish Community Structure

The development of the St. Lawrence and Ottawa Rivers has created unbalanced fish communities in Lake St. Lawrence and the Ottawa River. Species such as carp, white and redhorse suckers and bullhead have proliferated at the expense of a stable game fish community. Public review did not result in any comments pertaining to this issue directly, although several suggestions regarding stocking (covered below) were related to improving the supply of certain sport fish species.

Muskellunge in the St. Lawrence River

The muskellunge population, particularly in Lake St. Lawrence has declined substantially over the past 2-3 decades. Historic over-exploitation, habitat alterations and the post-seaway abundance of pike are probably responsible. Muskellunge have declined to the point where the fishery in Lake St. Lawrence has virtually disappeared. The Lake St. Francis population appears to be reasonably stable (or at least has not declined as far as the Lake St. Lawrence population). Assessment data on muskellunge are very hard to collect, making a definitive statement on their status difficult. The public suggested that stocking may be an effective way of rehabilitating the population.

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Smallmouth Bass in Lake St. Lawrence

Recent assessment information indicates that the bass population in Lake St. Lawrence declined between 1983 and 1985 but has apparently stabilized at this lower level between 1985 and 1987. This may reflect natural year-class fluctuations or it may be the initial indicator of some other problem. The public support for proposals to increase pre-season bass angling enforcement, to implement spawning sanctuaries and to open the season a week later, all indicate a public concern for bass although bass were not specifically identified as an issue by the public.

Introduction of Salmonids into the St. Lawrence River

There has been some interest expressed recently by the public in having salmonids (trout or salmon) stocked in the St. Lawrence River. This has resulted from the downstream movement of some Lake Ontario salmonids (brown trout, rainbow trout, chinook and coho salmon) and their subsequent capture by anglers in Lake St. Lawrence and the upper reaches of Lake St. Francis. Environmental conditions are not suitable for the establishment of self-sustaining populations. There is also a very real concern regarding the impact this stocking might have on the forage base in the river, specifically the alewife upon which the walleye rely as a major food source. The potential for further downstream movement of salmonids stocked here is of concern to Maritime fisheries managers. The public review resulted in suggestions that various salmonids (rainbow trout and brown trout) be stocked in the St. Lawrence and some of its tributaries to provide a more diverse and attractive fishery.

Loch Garry Winter Kill

The shallow nature of Loch Garry combined with nutrient input results in periodic winter kills of largemouth bass. This leads to a poor fishery in the following years although the fishery eventually recovers by itself (i.e. the winter kill is not total). Some public comment received agreed that this is a problem but also indicated that over-exploitation and the illegal harvest of spawning bass are also problems.

Creation of Fishing Opportunities

This is an issue which the public felt should be addressing by stocking various species (salmonids, walleye, bass and muskellunge) in various district waterbodies. The salmonid issue has already been identified (see "Introduction of Salmonids into the St. Lawrence River"). Other public suggestions included walleye and bass stocking in the large rivers, bass stocking in Loch Garry and muskellunge stocking in Lake St. Lawrence. The major issue with stocking is the public perception that stocking is an environmentally sound and effective way to enhance existing fisheries or create new ones. This view is held despite the scientific evidence that in some situations (i.e. stocking over top of existing walleye or bass populations) stocking is not effective. With the possible exception of muskellunge stocking in the St. Lawrence there are few opportunities in the District for stocking. The issue becomes one of public education as well as fish community manipulation.

Control of Over-Exploitation (species other than yellow perch)

This was identified as a need by a few respondents who indicated that bass and walleye exploitation should be curtailed by using minimum size limits. There was public support for the concept of more widely protecting spawning and pre-spawning walleye and bass, indicating a concern about the exploitation (legal and illegal) of these species during these vulnerable periods.

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2.4.2 Habitat and Water Quality Problems and Issues

There were a number of issues identified by the public. Water quality problems including contaminants were identified for the St. Lawrence and Ottawa Rivers as well as some inland streams. The need to protect and rehabilitate important fisheries habitat (such as walleye spawning areas in the South Nation River) was identified. Aquatic weeds in Lake St. Francis were indicated to be a problem. The drawdown impact on Lake St. Lawrence was recognized.

Major Dam and Reservoir Effects

There was a significant impact on local fisheries with the development of large dams on the Ottawa and St. Lawrence Rivers. The historical impacts are still being reflected in the instability in the fish community. The on-going periodic water level fluctuations affect fish production in Lake St. Lawrence and, potentially, in the Ottawa River.

Ottawa River Water Quality

High turbidity, low dissolved oxygen and the deposition of various organic materials on the bottom results in low productivity in the Ottawa River and contributes to the dominance of the fish community by bullhead, carp and non-game fish species. Some of this is natural (i.e. high turbidities) and cannot be improved.

Dredge and Fill Activities

Unauthorized shoreline alterations for development purposes on the larger waterbodies by landowners has impacts on the fish community by damaging or destroying the nearshore habitat used by many species (yellow perch, smallmouth bass,

sunfish, etc.) as spawning, nursery or feeding areas. Most activities affect only a small part of the waterbody but the cumulative impacts of continuous, piece-meal development are a problem. Protection under the Fisheries Act is difficult because of the usual lack of the necessary assessment data. In many cases a better public awareness program would be an asset in preventing the unwitting destruction of nearshore fish habitat.

Wetland Loss

Wetlands, on the St. Lawrence and Ottawa River as well as inland streams, are spawning and nursery areas for yellow perch, bullhead, pike and muskellunge as well as numerous other species. Wetland loss has been an on-going result of residential, commercial or agricultural development. Little public concern was expressed on this issue. While wetland creation for waterfowl is reasonably simple, the rehabilitation of wetlands as fish habitat is considerably more difficult making losses of these areas even more problematic.

Watershed Alterations for Flood Control and Low Flow Augmentation

Watershed alterations include activities on inland streams such as channelization, construction of municipal drains, dam construction and the development of low-head hydro-electric power generation facilities. Most inland streams have been historically impacted by these activities to some degree. The effects on inland fisheries have not been specifically documented due to lack of a major study but overall, the destruction of spawning and nursery areas, the decline in water quality and the reduction in stream diversity has probably outweighed any positive effects. Due to improved inter-agency communication and

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co-operation, the problem is less severe than it was. Very little public concern was expressed on this issue although the broad concerns for water quality and fish habitat would include concerns over this issue.

Agricultural Practices

In some parts of the district, practices such as poor manure handling, stream access by cattle, drain construction techniques and land tillage up to stream banks have reduced the fisheries production capability in inland rivers and streams. Increased nutrients, turbidity and siltation are the principal problems. This area of resource management is within the mandate of the Ontario Ministry of Agriculture and Food and the Ontario Ministry of the Environment and any solutions will have to be joint Ministry efforts.

Aquatic Plant Proliferation and Harvesting

Lake St. Francis supports extensive aquatic plant growth of various submergent species such as eel grass, milfoil (Canadian and Eurasian), coontail, elodea and muskgrass. These weed beds are essential habitat for various species, particularly yellow perch and northern pike. However, the proliferation of these plants has also resulted in access problems for recreational boaters and anglers and also an aesthetic problem. Some control has been undertaken using mechanical harvesters. The challenge will be to ensure that any weed harvesting does not have a negative effect on fish while, at the same time, dealing with the problems of access and aesthetics. There is a fair amount of public concern regarding aquatic weeds although little was expressed during the preparation of the Fisheries Management Plan.

Winter Navigation

Winter navigation was proposed for the Seaway in the mid-1970's. If it was implemented, it would have a severe impact on local fish habitat due to the wave action under the ice. This proposal is not being pursued at the present time.

Contaminants

Since the early 1970's, the contamination of fish with substances such as mercury and PCB's has been a major problem. In the St. Lawrence and Ottawa Rivers, mercury in fish has resulted in the larger individuals of walleye, pike, smallmouth bass and perch being recommended for limited or no consumption. Subsequently there has been some improvement in the contaminant levels in fish but not to the point where the consumption restrictions could be removed.

The Cornwall-Massena area has been identified as an International Joint Commission Area of Concern because of contaminant levels (mercury, PCB's, phenols, etc) and there are Remedial Action Plans now being prepared by OMNR, OMOE and Environment Canada for Cornwall and by the New York State Department of Environment Conservation for Massena.

Commercial fisheries for carp and American eel have also suffered due to closures required by the high levels of mercury and PCB's.

In addition to the problem of edibility, there is the potential problem of contaminants having direct effects on the fish populations themselves. This has not been documented locally but the possibility of it occurring is of growing concern.

2.4.3 Social Problems and Issues

Illegal Harvest

The illegal harvest of several fish species continues to be a local problem. The illegal taking of walleye and yellow perch during the spring (by spear, roll net, seine and gill net) is a problem on the St. Lawrence and Ottawa Rivers and their tributaries. Pre-season bass angling is also a major problem.

Of particular concern with respect to illegal harvest is the illegal sale of fish taken in large numbers for monetary gain. The public review indicated that illegal harvest of various species is still a major issue and needs to be dealt with. They also indicated that more sanctuaries are required to protect spawning fish.

Lake St. Lawrence - Low Angling Pressure

The angling pressure on Lake St. Lawrence is lower than could be expected and lower than the fish stocks can sustain. This is attributable to the lack of development on the reservoir, the absence of sufficient access points (marinas and launch ramps) and, to some degree, the relative lack of public awareness about the good quality of fishing.

Provincial Fishing Areas (P.F.A.'s)

The two P.F.A.'s supply most of the coldwater angling in the district. Catchable-size rainbow trout are stocked twice per year in each quarry to provide this artificial fishery. In recent years, the number of fish stocked has declined due to financial constraints. The quality of the fishery is directly dependent on the number of fish stocked so the quality of the

fishery has also declined recently. The public review indicated that not only were not enough fish being stocked but that more diversity in species should be available. Maintenance of the area should also be improved.

Access

The access for anglers to certain fisheries is not optimal. The Ottawa River has only a few launch sites while the South Nation River and Loch Garry have poor access. There are numerous access points on Lake St. Lawrence but some are of poor quality and cannot be used year-round. These waterbodies are all under-utilized by anglers and the shortage of suitable access points may be a contributing factor. The public indicated that more access points are necessary, particularly along the St. Lawrence.

Commercial Fish Industry

The local commercial fishing industry faces several problems which in combination, threaten the viability of the local fishery. The fisheries are based on coarse fish species (bullhead, sunfish, american eel, carp, suckers, etc.) and the markets for these species fluctuate considerably. Closures due to contaminant levels have affected the carp and eel fisheries. There are no local markets for processing. There are conflicts with some anglers due to the false perception that the commercial fishing is affecting their catches. The problems with the bullhead, sunfish and sturgeon populations have been discussed earlier. There is a large supply of under-utilized species (i.e. carp) because of contaminant and market problems. Communications among the commercial fishermen, angling groups, MNR and Fisheries and Oceans could be improved. Public input regarding commercial fishing was extensive. There was a strong concern expressed regarding the allocation of a yellow perch quota to the Lake St.

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Francis hoop-net fishery. Many comments reflected the perception that commercial fishing activity was reducing angling opportunities by removing fish (i.e. bullhead or sunfish) that anglers were seeking and causing declines in the abundance of these species. The public also felt that spring netting by commercial fishermen was resulting in the mortality of sport fish such as yellow perch. Concern was expressed that this was occurring in Lake St. Francis and the Ottawa River. The proximity of netting operations to tributaries during the spring was also regarded as a problem. This perception is widely-held despite the absence of any supportive data. The commercial fishermen identified that they would like access to a yellow perch quota in Lake St. Francis and that the flow of information regarding contaminant restrictions could be improved. They also indicated that there should be more co-operation between MNR and the commercial fishermen in managing commercial resources.

Commercial Aquaculture

Recently proposed changes to the Provincial Game and Fish Act will allow the commercial aquaculture of a variety of species including yellow perch, American eel, walleye and salmon. While this could improve commercial fish production by providing a contaminant-free and steady supply, considerations include the source of fish for culture and the potential for the spread of disease.

The eel ladder has been used recently as a source for small eels in a culture operation run by Coolwater Farms of Pickering, Ontario. This project is being evaluated on a year-to-year basis to determine the benefits derived and the potential impact on ladder operations.

Baitfish Industry

The baitfish industry in the district suffers from a number of problems. There are seasonal shortages in the local supply. Some areas are harvested too heavily, while others are under-harvested. The overall supply of baitfish is sufficient to meet the projected demand.

Baitfish harvest information is not accurate and the communication between baitfishermen and dealers and MNR could be improved.

Potentially, baitfish culture could ease some of these problems. Very few comments were received on these baitfish issues.

Akwesasne Food Fishery

The Province of Ontario is presently trying to negotiate Indian Fishing Agreements with the various Indian people in the province. The purpose of these negotiations is to ensure that the fisheries resources are managed in such a way that the resources are protected while recognizing the traditional access of the Indian People to the fisheries resources. To date, the Akwesasne have not participated in this process. There is very little information on their harvest. Contaminant levels in the fish are of concern to the Mohawk Council of Akwesasne as well as the provincial ministries. As yet, no allocation has been given to the Mohawk Council of Akwesasne for their recognized food fishery for personal use. The sale of these fish in Ontario is not permitted. The public indicated that the subsistence fishery must not affect the perch resource. Ministry of Natural Resources staff met with representatives of this group regarding local fisheries issues and management but the Mohawk Council of Akwesasne has not provided any specific comments. They have indicated in a general position paper that they are interested in co-operating with MNR in fisheries management activities.

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2.4.4 Public Awareness and Scientific Knowledge Issues

Lack of Assessment Data

One of the basic problems facing the district is the inability to undertake major management initiatives because of a lack of information. In the past 5 years the district has established an assessment program which provides trend-through-time information on some aspects of the district's fisheries (habitat rehabilitation assessment on some inland rivers, relative abundance and growth information on some species in the St. Lawrence and Ottawa Rivers, special studies on yellow perch in the St. Lawrence). However, there are several major items which need to be addressed: angler-use and harvest, habitat assessment for rehabilitation and protection, species assessment (walleye, muskellunge, largemouth bass), and commercial fish status. The contaminant issue also needs to be studied more fully. Without this information, many of the proposed strategies and tactics may be ineffective. The recently-established St. Lawrence River Fisheries Management Unit will provide some co-ordination of assessment activities along the River. This unit will deliver its program through the 3 districts along the River.

Public Involvement and Education

Many of the problems and issues in local fisheries have resulted from poor public awareness and a lack of consultation amongst managers and users. Recent initiatives to correct this such as the Community Fisheries Involvement Program have been successful and need to be expanded. However, the resolution of such issues as habitat protection and the allocation of fish among users will require an increase in public awareness. Conversely, it is important that the various users be provided access to the management process so that local management

initiatives which they desire can be addressed. There is also a need to improve the day-to-day flow of information to the users to keep them informed on fisheries issues. Finally, the public education system must be made aware of fisheries values, concepts and issues so that the awareness of tomorrow's anglers is improved. There is also a continuous demand for fisheries extension information which requires considerable staff time. Public review indicated that more co-operative projects are needed and that public awareness does need to be improved.

Inter-Agency Co-Ordination

The major district waters are inter-provincial and international boundary waters. In order to implement a truly broad ecosystem management approach on these systems, close co-ordination and communication with the other governments' agencies must be achieved. The extent of private land within the district and its developed nature means that there are a large number of agencies (municipalities, other provincial ministries, federal ministries, Conservation Authorities, etc.) whose programs impact on the local fisheries. Again, co-ordination and communication with these agencies must be improved to ensure long-term maintenance of the local fisheries resources. The public agreed that more co-operation is needed, particularly with Quebec in managing the Lake St. Francis and Ottawa River fisheries.

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3.0 MANAGEMENT DIRECTION

3.1 General Fisheries Management Objective

The overall direction for fisheries management in Cornwall District is outlined in the Cornwall District Land Use Guidelines (1983).

The Southern Ontario objective for fisheries management is to "provide opportunities for recreation and realize economic benefits consistent with the maintenance of healthy fish communities".

The District Fisheries Management Plan will meet this objective by establishing strategies and tactics for Cornwall District which will allow the achievement of specific sport fish, commercial fish and baitfish objectives and targets (see Section 3.2).

3.2 Target-Driven Management

Evaluation of the target refinement table (Table 1) highlights the overall management approach required.

- . there is sufficient potential yield in the large rivers for all sports fish except yellow perch to meet the anticipated demand. The challenge will be to enhance and protect the populations of desired species such as walleye, northern pike, smallmouth and largemouth bass and muskellunge so that these populations can meet the demand by anglers.
- . The yellow perch population in Lake St. Francis is not sufficient to meet the anticipated demand and the yellow perch harvest cannot be increased to a major extent. The challenge will be to attain an equitable allocation between the sport, commercial and subsistence fisheries while maintaining total harvest at a level consistent with the allowable yield.

- . the inland fish communities will have to be enhanced to meet the anticipated demand. Habitat protection is a key requirement. Production from Loch Garry, the major inland streams and the Provincial Fishing Areas will be required to meet demand.
- . the potential yield is available to meet the demand for commercial food fish. Other considerations (markets, contaminants) may make target achievement difficult. The allocation of a yellow perch quota is a major issue.
- . the baitfish potential yield cannot be accurately estimated, however the target is quite low and it is expected that the anticipated demand can be met. The development of private baitfish aquaculture projects would contribute to solving occasional seasonal shortages.

3.3 Specific Fisheries Objectives

The broad fisheries objective for Southern Ontario has been broken into six district objectives. There are three sport fish objectives (one each for the St. Lawrence and Ottawa River, yellow perch and inland waters), one commercial food fish objective, one baitfish objective and one objective for endangered, threatened and rare fish species.

3.3.1 Sport Fish Objectives

The general sport fish objective for the district is to "meet demand within the limits of a wisely managed and rehabilitated resource".

This general objective has been broken into three specific objectives and targets which deal with the St. Lawrence and Ottawa Rivers, the yellow perch issue and inland fisheries.

3.3.1.1 St. Lawrence and Ottawa Rivers Objective

FOR THE ST. LAWRENCE AND OTTAWA RIVERS' SPORT FISHERIES; ENHANCE AND PROTECT THE WARMWATER FISHERIES TO MEET THE PROJECTED DEMAND (TARGET) OF APPROXIMATELY 152,000 ANGLING OPPORTUNITIES WHILE MAINTAINING THE PRESENT ANGLING QUALITY.

To accomplish this will require the continued rehabilitation and protection of the key walleye, northern pike, smallmouth and largemouth bass, muskellunge and panfish fisheries.

Major issues which will have to be dealt with are habitat protection and rehabilitation, reduction in illegal harvest, continual monitoring of the status of these populations, water quality improvement, a reduction in contaminant levels, increased public awareness and inter-provincial and international co-operation. Allocation between anglers and the Mohawk Council of Akwesasne subsistence fishery will have to be dealt with. Some reduction in legal harvest may be necessary, pending the results of the monitoring program.

There are 19 strategies and related tactics designed to meet this objective.

- . ESTABLISH WARMWATER ASSESSMENT PROGRAMS TO MONITOR TRENDS IN FISH POPULATIONS AND ANGLER-USE
 - . assess angler harvest using creel census
 - . assess population trends by index netting, tagging programs and young-of-the-year assessment
 - . assess trends in major commercial fisheries
 - . establish location of key spawning and nursery areas
 - . some of these assessment programs will be done in co-operation with the St. Lawrence River Fisheries Management Unit

. ESTABLISH BETTER INTER-AGENCY CO-ORDINATION TO ENSURE OPTIMUM
MANAGEMENT OF RIVER-WIDE RESOURCES

- . continue to participate in the development of inter-agency ecosystem-wide management plans such as the Remedial Action Plan and the St. Lawrence River Surveillance Plan.
- . co-operate with Quebec and New York State in exchanging information and managing fisheries
- . co-operate with various water management agencies to ensure that fisheries concerns are addressed
- . participate in coordinated fisheries management along the St. Lawrence and Ottawa Rivers (i.e. St. Lawrence River Fisheries Management Unit)
- . encourage fisheries-related tourism benefits through co-operative efforts with Ministry of Tourism and Recreation

. INCREASE PUBLIC CO-OPERATION IN LOCAL FISHERIES MANAGEMENT

- . continue to promote and deliver the Community Fisheries Involvement Program (CFIP)
- . host a CFIP workshop
- . promote volunteer concepts and co-operative programs

. INCREASE PUBLIC AWARENESS OF FISHERIES ISSUES THROUGH IMPROVED
COMMUNICATIONS

- . promote the delivery of the Provincial Fisheries Education program
- . lecture school groups on fisheries management
- . host field trips to demonstrate fisheries management projects
- . improve communications by issuing regular news releases, fact sheets, appearing at fall fairs, producing of a district fishing brochure and providing a fisheries extension service

- . ENSURE AQUATIC PLANT CONTROL DOES NOT HARM THE FISHERIES RESOURCES
 - . review the weed harvesting plans of the Raisin Region Conservation Authority (RRCA)
 - . discourage the use of aquatic herbicides
 - . request that the aquatic weed problem be addressed in the Cornwall Remedial Action Plan
 - . co-operate with the RRCA in informing the public regarding and the need to protect fisheries when undertaking aquatic weed control projects.
- . REDUCE THE NEGATIVE IMPACTS OF CONTAMINANTS ON FISH AND ANGLERS
 - . continue to collect fish samples for contaminant analysis by MOE
 - . incorporate a fish health index into the assessment program to determine the trend in tumour frequency and incidence in fisheries which are affected by toxic contaminants.
 - . re-analyse historical contaminant data for certain species
 - . request that Fisheries and Oceans undertake a more systematic commercial fish contaminant sampling program
 - . continue to participate in the development and implementation of the Cornwall/Lake St. Francis Remedial Action Plan
- . REDUCE NET LOSS OF LITTORAL ZONE HABITAT
 - . identify key areas to landowners, contractors and other agencies to prevent unauthorized destruction of fish habitat
 - . continue to review dredge and fill applications and assess impact as required with Lands & Waters staff

- . promote shoreline protection, community docking, littoral zone rehabilitation and wetland protection
 - . do not allow construction in the water unless fish habitat protection or mitigation is undertaken by the proponent
 - . work with other agencies to improve and simplify the approvals process for work in or near the water that could impact fish habitat
 - . see Enforcement strategy for additional tactics (Pg. 44)
- . REDUCE THE IMPACT OF WATER LEVEL FLUCTUATIONS ON FISH IN LAKE ST. LAWRENCE
- . discuss water level management with the appropriate management agencies
 - . undertake experimental cover planting and artificial cover construction in the drawdown zone
 - . continue the Long Sault Parkway Impoundment feasibility study
 - . implement smallmouth bass spawning shoal rehabilitation in Lake St. Lawrence
 - . investigate the feasibility of small marsh water level management to enhance fish habitat
- . PROTECT FISHERIES HABITAT IN KEY TRIBUTARIES
- . identify and assess habitat in key streams
 - . place protection priorities on streams and inform key landowners and agencies of these priorities
 - . review all tributary management plans
 - . encourage fish habitat rehabilitation projects by proponents of in-water construction projects and through the Community Fisheries Involvement Program
 - . see Enforcement strategy for additional tactics (Pg. 44)

- . CO-OPERATE WITH OMOE AND OMAF TO REDUCE NEGATIVE WATER QUALITY IMPACTS ON FISHERIES
 - . establish fisheries-related water quality monitoring in key areas with OMOE
 - . ensure fisheries concerns are addressed in the Remedial Action Plan and the IJC St. Lawrence River Surveillance Plan
 - . initiate an inter-agency effort to reduce agricultural impacts on fisheries
- . IMPROVE ACCESS TO THE RESOURCE
 - . purchase, develop or construct new access points
 - . improve launch sites on the Ottawa and St. Lawrence Rivers
 - . work with the St. Lawrence Parks Commission to maintain shore access for spring bullhead anglers
 - . encourage municipalities and other agencies to develop and maintain access points
 - . encourage municipalities and other agencies to develop shoreline facilities (i.e. Fishing piers) to provide fishing opportunities for shore-based anglers.
- . PROMOTE THE USE OF UNDER-UTILIZED SPECIES
 - . promote the use of these species in media communications and educational programs
 - . continue to support bow and arrow seasons for carp where feasible
- . PROTECT SPAWNING FISH
 - . create seasonal sanctuaries at crucial walleye and bass spawning sites
 - . adjust the bass season opening to the last Saturday in June (Divisions 11 and 12): close the season November 30 (Divisions 9, 11, and 12)
 - . close the walleye season 2 weeks earlier (March 15th) in Divisions 9, 11 and Lake St. Francis

- . REDUCE EXPLOITATION OF SPORT FISH SPECIES AS REQUIRED
 - . control exploitation through regulation of seasons, creel limits or size limits. Except for yellow perch (see Objective 2), no additional control of exploitation is required at this time.
 - . INCREASE SPORT FISH RECRUITMENT TO LARGE RIVERS BY IDENTIFYING AND REHABILITATING KEY SPAWNING AREAS
 - . assess streams to identify key spawning areas
 - . continue maintenance and rehabilitation of important spawning areas
 - . attempt to establish walleye spawning runs in suitable streams using adult transfers
 - . promote fish habitat enhancement projects through the Community Fisheries Involvement Program
 - . RE-ESTABLISH A TROPHY MUSKELLUNGE FISHERY IN LAKE ST. LAWRENCE
 - . increase minimum size limit to 102 cm and reduce creel limit to 1 fish/day
 - . investigate the feasibility of rehabilitation stocking
 - . promote catch and release angling through public education
 - . provide incentives to anglers to provide muskellunge catch data
 - . participate in muskellunge management or assessment programs initiated by the St. Lawrence River Fisheries Management Unit
- 7

- . CONTINUE TO OPERATE THE EEL LADDER FOR CULTURE AND FISHWAY PURPOSES
 - . continue to operate and maintain the eel ladder
 - . when feasible, provide eels for experimental aquaculture programs
- . PROVIDE A FOOD FISH ALLOCATION TO THE MOHAWK OF AKWESASNE (Ontario)
 - . liaise with the Mohawk Council of Akwesasne to establish an allocation of sport fish species for subsistence purposes and to establish the best harvest techniques
 - . work with the Mohawk Council of Akwesasne and OMOE to reduce impacts of contaminants on this subsistence fishery
- . ESTABLISH A DIRECTED ENFORCEMENT PROGRAM TO REDUCE ILLEGAL HARVEST AND PROTECT HABITAT
 - . continue spring enforcement on walleye spawning runs
 - . increase pre-season bass angling enforcement
 - . increase regular angler contacts
 - . maintain the co-operative walleye watches
 - . encourage the Report-A-Poacher program
 - . increase the effectiveness of the Deputy Conservation Officer program
 - . request higher fines for fisheries convictions
 - . improve staff awareness of fisheries habitat concerns
 - . maintain spring pike enforcement
 - . increase habitat protection enforcement

3.3.1.2 Yellow Perch Objective

PROTECT AND ENHANCE YELLOW PERCH POULATIONS IN THE ST. LAWRENCE AND OTTAWA RIVERS TO PROVIDE 130,000 KG TO THE SPORT, COMMERCIAL AND SUBSISTENCE FISHERIES WHILE MAINTAINING THE PRESENT ANGLING QUALITY STANDARD.

To accomplish this objective will require the allocation of the allowable yield in Lake St. Francis among the sport, commercial and subsistence fisheries. Total harvest cannot increase to any extent and any future regulatory controls will be based on assessment results. Habitat protection and enforcement to reduce illegal harvest are major components of the program. The contribution of perch to the local fishing tradition and tourism is sizeable. The Lake St. Lawrence and Ottawa River populations can sustain more harvest.

The licencing of commercial anglers will be required by a change in the provincial regulation relating to the sale of angler-caught fish. Without licencing, the commercial angling fishery would have to be eliminated. Maintenance of the "status quo" is desirable in terms of participation and harvest. Implementation of an angling closure during the spring spawning season will be done to prevent the possibility of over-harvest occurring in the near future.

There are 4 strategies and related tactics dealing with yellow perch.

- . MAINTAIN THE HARVEST OF YELLOW PERCH IN LAKE ST. FRANCIS AT THE ALLOWABLE YIELD LEVEL
- . maintain the assessment program to determine population status on a long-term basis
- . determine angler-use on a cyclical basis
- . implement a young-of-the-year assessment program to determine year class strengths

- . co-operate with Quebec in yellow perch management and urge Quebec to eliminate the sale of angler-caught perch in their portion of Lake St. Francis
 - . eliminate the sale of angler-caught perch except by licenced commercial anglers, once provincial legislative changes are made regarding the sale of angler-caught fish
 - . at this time, quotas and entry to the fishery would be unrestricted (i.e. the "status quo"); quotas and limits on the number of licencees are future options if harvest reductions are required
 - . provide an allocation of 6,000 kg to three commercial hoop-net fishermen (2,000 kg each) on an annually-renewable basis pending the determination of angler harvest and population status
 - . use a closed spring season (length to be determined) to protect perch once commercial anglers are licenced or if perch population declines
 - . establish allocation and harvest techniques with the Mohawk Council of Akwesasne people to sustain the subsistence fishery
 - . continue to have the Department of Fisheries and Oceans test contaminant levels in perch from Lake St. Francis (necessary for enforcement of the Fish Health Inspection Act)
- . PROMOTE THE YELLOW PERCH FISHERIES IN LAKE ST. LAWRENCE AND THE OTTAWA RIVERS
- . maintain the year-round season and unlimited creel limit
 - . continue to monitor the status of the populations
 - . monitor angler-use on a cyclical basis
 - . eliminate the sale of angler-caught perch in Lake St. Lawrence and the Ottawa Rivers.
 - . improve access and promote public awareness (see Other Strategies - Objective 1)

. REDUCE NET LOSS OF YELLOW PERCH HABITAT TO ZERO

- . use the recently developed yellow perch habitat model to inform landowners, contractors and agencies of the key areas requiring protection
- . increase yellow perch habitat protection enforcement
- . investigate impacts of Seaway vessel wave wash on perch eggs survival and follow-up with appropriate protection measures
- . implement the habitat protection and rehabilitation strategies outlined under Objective 1

. ENHANCE ENFORCEMENT EFFORTS TO REDUCE THE ILLEGAL HARVEST OF YELLOW PERCH

- . increase spring enforcement on the illegal use of roll nets, gill nets and seines and the illegal sale of perch
- . encourage the Report-A-Poacher program
- . increase angler checks to reduce illegal harvest
- . once commercial angling licences are instituted, increase enforcement to reduce the illegal sale of yellow perch and to ensure compliance with the Fish Inspection Act

3.3.1.3 Inland Waters Objective

PROTECT AND ENHANCE INLAND SPORT FISHERIES TO MEET THE PROJECTED DEMAND OF APPROXIMATELY 34,000 OPPORTUNITIES AT THE PRESENT ANGLING QUALITY STANDARD.

To meet this objective, the inland river fisheries will have to be enhanced, the Loch Garry fishery will have to be protected and the artificial fisheries in the Provincial Fishing Areas will have to be enhanced. The inland fisheries are small compared to those of the St. Lawrence and Ottawa Rivers. Habitat

and water quality protection and rehabilitation will be a major requirement. Inter-agency co-operation and access can also be improved.

There are 5 strategies and related tactics within this objective.

. ENHANCE THE LOCH GARRY LARGEMOUTH BASS FISHERY

- . maintain the present level of pre-season bass angling enforcement
- . establish a spawning sanctuary (May-June) in part of the lake based on assessment information
- . conduct fish habitat rehabilitation projects and encourage CFIP habitat rehabilitation projects
- . establish a cyclical assessment program to determine population trends and use
- . improve access, in co-operation with other agencies

. INCREASE THE COLDWATER FISHING OPPORTUNITIES AT THE PROVINCIAL FISHING AREAS

- . increase the number of fish stocked to 7,000 annually (3,500 in each area)
- . maintain present level of maintenance
- . stock a mixture of brook trout and rainbow trout if brook trout can be obtained from a private source

. CONTINUE TO SUPPORT PRIVATE AQUACULTURE

- . provide extension advice upon demand
- . encourage the development of private fish culture facilities where appropriate

. ENHANCE, PROTECT AND REHABILITATE KEY FISHERIES ON INLAND RIVERS AND STREAMS

- . provide access points or support the development of access points by other agencies on the South Nation River
- . increase public awareness regarding the value of inland fisheries
- . assess and rehabilitate walleye spawning beds in the South Nation River
- . designate walleye spring spawning sanctuaries at Crysler and Chesterville
- . continue to review and comment on all drainage and water management proposals
- . co-operate with OMAF, OMOE and the Conservation Authorities to improve water quality limitations on fisheries
- . concentrate assessment and rehabilitation programs on unaltered streams first

. PROTECT INLAND FISHERIES THROUGH AN ENHANCED ENFORCEMENT PROGRAM

- . continue regular angler checks to reduce illegal harvest
- . continue spring enforcement on walleye spawning areas
- . continue regular angler checks at the Provincial Fishing Areas
- . continue aquaculture enforcement (i.e. audits of transfer permits and licences to operate a fishing preserve and licences to propagate and sell fish)
- . increase habitat protection enforcement

3.3.2 Commercial Food Fish Objective

MAINTAIN THE VIABILITY OF THE LOCAL COMMERCIAL FOOD FISHERY AND MEET THE ANNUAL TARGET OF APPROXIMATELY 171,000 KG OF FISH.

The commercial food fishery will continue to depend on coarse fish and panfish species and will remain, largely, an impounding gear fishery. To meet the objective several issues will have to be dealt with. Protection of the important stocks (bullhead, sunfish, and sturgeon) will be necessary, given the discrepancy between allowable yield and projected use for the panfish/bullhead assemblage. Contaminant restrictions remain a problem for many species. Fluctuating markets are difficult to deal with. Some measure of assessment will be required to monitor trends in these fisheries. Inter-provincial and international co-operation will be required for stock management, particularly sturgeon on the Ottawa River. Presently under-utilized species such as carp comprise the major increase in the target. An allocation for yellow perch in Lake St. Francis is proposed (see Objective 2) to maintain the local supply of Lancaster perch. Habitat and water quality issues affecting these stocks are dealt with under Objective 1.

There are 11 strategies and related tactics dealing with the commercial food fishery.

. MAINTAIN LAKE ST. FRANCIS BULLHEAD/PANFISH HARVESTS WITHIN ALLOWABLE YIELD

- . maintain present number of fishermen and present quotas unless the assessment program indicates a reduction is warranted
- . expand the commercial fish catch sampling program
- . increase Conservation Officer contacts with commercial fishermen
- . encourage harvest of under-utilized species

- . INCREASE THE HARVEST OF BULLHEAD/PANFISH IN OTHER DISTRICT WATERS
 - . continue the fall bullhead fishery in Lake St. Lawrence
 - . increase bullhead quotas
 - . expand licencing of commercial harvesters for coarse fish species
- . PROTECT EXISTING STURGEON STOCKS IN THE OTTAWA RIVER
 - . reduce the commercial quota and raise the minimum size limit to 71 cm
 - . establish a sturgeon management committee with Quebec
 - . continue to monitor the commercial harvest of sturgeon
- . INCREASE COMMERCIAL HARVEST OF CARP
 - . licence an additional commercial fisherman for carp only where contaminant levels permit and with fishing gear which will not conflict with angling use (St. Lawrence or Ottawa Rivers)
 - . encourage existing operators to harvest carp by maintaining unlimited quotas
- . MAINTAIN THE COMMERCIAL FISH ADMINISTRATION PROGRAM
 - . maintain present level of commercial fish administration for all species except yellow perch
 - . increase enforcement and administration efforts on the yellow perch fishery in Lake St. Francis once commercial angling licences are instituted

- . PROMOTE COMMERCIAL AQUACULTURE FOR CONSUMPTIVE USES
 - . continue to provide eggs for broodstock only when appropriate
 - . continue to monitor developments in eel culture
 - . continue to encourage the development of appropriate culture activities in co-operation with OMAF
- . MONITOR CONTAMINANT LEVELS IN COMMERCIAL FISH SPECIES
 - . encourage the Department of Fisheries and Oceans to expand their contaminant testing program to include sturgeon and eels
 - . increase communications with the Department of Fisheries and Oceans contaminant testing branch
 - . request area-specific contaminant sampling by the Department of Fisheries and Oceans
- . IMPROVE COMMERCIAL FISH MARKETING
 - . restrict new entrants to the commercial fishery
 - . identify and promote under-utilized coarse fish fisheries through the warmwater assessment program
- . INCREASE PUBLIC AWARENESS OF THE BENEFITS OF THE DISTRICT COMMERCIAL FOOD FISHERY
 - . host an annual meeting between recreational and commercial user-groups
 - . produce a pamphlet on the District commercial food fishery

. REDUCE USER GROUP CONFLICTS

- . continue to act as arbitrator to resolve user-group conflicts
- . maintain current commercial modernization strategy
- . increase enforcement efforts on commercial and recreational fisheries (as per other strategies)
- . investigate and document the distribution and number of anglers and commercial fishermen in key bays and tributaries during the spring

. ESTABLISH YELLOW PERCH ALLOCATIONS TO COMMERCIAL HOOP-NET FISHERIES

- . maintain present yellow perch quotas on the Ottawa River
- . do not allocate yellow perch to commercial fishermen in Lake St. Lawrence
- . on an interim basis, allocate 6000 kg to the commercial hoop-net fishery in Lake St. Francis (annually renewable)
- . pending the acquisition of creel census data, assessment data, commercial angling harvest reports and negotiations of a subsistence fishery for the Akwesasne, determine a final allocation of yellow perch in Lake St. Francis

3.3.3 Baitfish Objectice

INCREASE THE DISTRICT PRODUCTION OF BAITFISH TO MEET THE TARGET OF APPROXIMATELY 62,000 DOZEN BY THE YEAR 2000.

The resource base is available to meet the anticipated increase in demand. Local conflict resolution, improved harvest estimates, aquaculture promotion and improved communication with this group will be the focus of the strategies.

There are 4 strategies and related tactics dealing with Cornwall District's baitfish industry.

- . PREVENT OVERHARVEST OF LOCAL BAITFISH POPULATIONS
 - . continue to monitor annual harvest by annual returns and regular inspections
 - . restrict new entrants to baitfish harvesting
 - . implement a waterbody specific licencing system
 - . promote under-utilized baitfish species using diet studies from warmwater fishery assessment programs
- . IMPROVE BAITFISH HARVEST ESTIMATES
 - . maintain current baitfish administration process
 - . increase baitfish enforcement efforts
 - . establish local standards for the accurate reporting of baitfish harvest and sales.
- . PROMOTE COMMERCIAL BAITFISH AQUACULTURE
 - . encourage baitfish culture through the fisheries extension program in co-operation with OMAF
- . DEVELOP NEW BAITFISH HANDLING TECHNIQUES
 - . inform harvesters of new developments in rearing, handling and transportation techniques

3.3.4 Endangered, Threatened and Rare Fish Species Objective

There are only 2 species of concern: lake sturgeon (St. Lawrence River) and the river redhorse (Ottawa River). Lake sturgeon has been classed as an endangered species by New York State. Populations in the St. Lawrence are low and the population trend is unknown. River redhorse have been identified

as a rare species although they would appear, based on the warmwater assessment program, to be fairly common in the Ottawa River.

There are 3 strategies and related tactics for this objective.

- . PROTECT LAKE STURGEON IN THE ST. LAWRENCE RIVER
 - . close the angling season on the St. Lawrence River
 - . continue to prohibit the commercial harvest of sturgeon in the St. Lawrence
 - . co-operate with the Mohawk Council of Akwesasne in promoting conservative sturgeon subsistence harvesting
- . PROTECT RESIDENT RIVER REDHORSE AS REQUIRED
 - . enforce existing legislation pertaining to habitat protection
 - . continue to document species abundance and distribution
- . PROTECT RARE AND THREATENED SPECIES AND THEIR HABITAT AS THESE SPECIES ARE IDENTIFIED IN LOCAL WATERS
 - . monitor status of rare/threatened species where possible within existing programs
 - . enforce existing legislation pertaining to habitat protection

4.0 IMPLEMENTATION SCHEDULE

The preceding section "Management Direction" describes the overall approach to fisheries management to the year 2000. It describes strategies and tactics which need to be implemented to fulfil the targets for angling opportunities, commercial fish and baitfish production and the protection of rare, threatened or endangered species.

This section provides a description of how these tactics will be implemented in the first 5 years of the planning period (1987-1991). It contains detailed program information in terms of which programs and projects will be implemented during the next five years.

Integration with other Ministry programs will occur at the annual work program planning level to ensure programs are not working at cross-purposes.

There are two parts to the implementation schedule. Implementation Schedule A includes those projects which can be undertaken with existing staff and resources. These are the high-priority tactics. Implementation Schedule B contains slightly lower-priority tactics which will be undertaken if staff or resources are enhanced above their present level.

The Implementation Schedules are formatted to show the tactics to be implemented by objective and strategy, providing a link between the issue (or problem) and the proposed solution(s). Specific information on the location, timing (year) and whether the program is new or existing is provided for each tactic.

The implementation schedule will be up-dated annually with one year added to the schedule each year.

At the end of the initial five year period (1991) the District Fisheries Management Plan will be reviewed. At this time the success of the previous five years implementation program will be assessed and the new 5 year implementation schedule (1992-1996) will be prepared and reviewed internally and by the public.

As well as the five year review, any major changes in the resource base, its use or pertinent legislation (such as the Environmental Assessment Act) may require review of a particular section of the Plan or the Implementation Schedule. In this case, public consultation would be undertaken as part of the review process.

Implementation Schedule A is based on the Cornwall District 1987-88 fisheries funding level. The permanent staff resources included in the plan include part of the time for four Conservation Officers, one Conservation Officer-Management Technician, one District Biologist, one Enforcement Co-ordinator/Fish and Wildlife Management Officer, one Fish and Wildlife Supervisor and two clerks. The rest of this staff's time is devoted to wildlife management. Some programs will also be undertaken utilizing seasonal staff.

Changes in the funding levels or staffing of either permanent or casual positions will change this implementation schedule.

IMPLEMENTATION SCHEDULE A: TACTICS TO BE IMPLEMENTED, 1987-1991, WITH EXISTING STAFF AND FUNDING

Objective 1: For the St. Lawrence and Ottawa Rivers' sport fisheries; enhance and protect the warmwater fisheries to meet the projected demand (target) of 152,000 angling opportunities while maintaining the present angling quality.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Establish warmwater assessment programs on the three major reservoirs	• conduct creel on each waterbody, once every five years	LSP ^b LSL ^c OTT ^d	1988 1988 1991	N	Detects if harvest is affecting abundance.
	• conduct index netting on three waterbodies every other year	LSP LSL OTT	1988,1990 1987,1989,1991 1987,1989,1991	E	Detects changes in population abundance and community structures.
	• identify key spawning and nursery habitat and increase habitat enforcement efforts	LSP LSL OTT	1987-1991	N	Identifies critical areas which require protection.
	• establish young-of-the-year sampling program	LSP LSL OTT	1988-1991	N	Monitors year-class success before entry to the angling fishery.
	• establish spring walleye spawning run assessment (every year for 5 years)	Raisin River	1988-1990	N	Detects abundance of spawning walleye stock.
	• use the St. Lawrence River Fisheries Management Unit to deliver part of district assessment program on St. Lawrence River.	LSP	1988-1991	N	Provides river-wide assessment capability

^a N/E = New/Existing

^b LSP - Lake St. Francis

^c LSL - Lake St. Lawrence

^d OTT - Ottawa River

STRATEGY

TACTIC LOCATION YEAR(S) N/E^a ISSUE/PROBLEM ADDRESSED

Establish better inter-agency co-ordination

- participate in St. Lawrence River Sub-Committee LSF LSL 1987-1991 N Improves management on river-wide basis.
- establish management sub-committee with Quebec LSF OTT 1987-1991 E Improves management on river-wide basis.
- liaise with Mohawk Council of Akwesasne to discuss fisheries management direction LSF LSL 1987-1991 E Determine native food fishery allocation.
- establish input to Conservation Authority Advisory Boards Raisin River South Nation River 1987-1991 E Ensure protection of fisheries habitat.
- participate in IJC St. Lawrence River Task Force and Remedial Action Plans LSL LSF 1987-1991 E River-wide, international commitment to fisheries management and improving water quality.
- establish regular meetings with Ministry of the Environment and Ministry of Tourism and Recreation LSF LSL OTT 1987-1991 N Improves communications with other government agencies with fisheries concerns.
- co-ordinate management programs with Brockville and Carleton Place MNR districts LSF LSL OTT 1987-1991 E Provides management on a river-wide scale.

Increase public co-operation in local fisheries management

- continue to promote CFIP program District-Wide 1987-1991 E Encourages public participation and awareness.
- host CFIP workshop " 1989 N Promotes public participation and awareness.
- promote volunteer concepts District-Wide 1987-1991 E Promotes public participation.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Increase public education of fisheries management	• deliver 15 lectures per year to local schools	"	1988-1991	N	Promotes better understanding of the local resource.
	• host 3 viewing tours annually for general public of walleye spawning runs	"	1987-1991	E	Promotes better understanding of the local resource.
	• issue 8 news release or resource reports annually	"	1987-1991	N	Increase public awareness of local management directions.
	• produce a district fishing map	"	1987	N	Increase public awareness of Cornwall fisheries.
	• improve staff public relations training	"	1988-1991	N	Improves dissemination of information.
	• improve MTR information	"	1987	N	Promotes tourism and associated economic benefits.
	• increase media profile of major fisheries programs	"	1987-1991	N	Increases public awareness of MTR programs.
	• develop fisheries management display for use at LSL fairs and shows and deliver these at 2 or 3 shows or fairs per year	LSF	1989	N	Increases public awareness and communication with public.
	• review all harvesting plans of RRCA	LSF	1987-1991	E	Ensures harvest operations have minimal effect on fishery.
	• discourage aquatic plant herbicide use	District-Wide	1987-1991	E	Protects fisheries from wide-scale use of herbicides.
Ensure aquatic plant control does not harm fisheries resource					

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Reduce negative impacts of contaminants on fish species	request MOE aquatic plant study as part of Remedial Action Plan	"	1988	E	Identifies changes in reservoir and effects of harvesting.
	continue contaminant collection program during warmwater assessment	LSP LSL OTT	1987-1991	E	Monitors trends in contaminant levels.
	incorporate fish health index into warmwater assessment program	LSP LSL OTT	1989-1991	N	Identifies possible contaminant effects on fish health.
	re-analyse historical contaminant data from MOE contaminant analysis	LSP LSL OTT	1989	N	Incorporates age into contaminant analysis.
	request F & O for more systematic sampling of commercial fishery from the Department of Fish- eries and Oceans	LSP LSL OTT	1987-1991	N	Provides more specific contaminant data.
Reduce net loss of littoral zone fish habitat in the major reservoirs to zero	repeat 1978 Cornwall Island collection program	LSP	1988	N	Measures contaminant change over past decade.
	review all dredge/fill applications and prevent destruction or alteration of fish habitat unless fisheries impacts are negligible or mitigated	District- Wide	1987-1991	E	Protects valuable littoral zone from uncontrolled alteration.
	advise all contractors of need for approval requests before shore zone alteration	"	1987-1991	N	Public awareness provides protection to habitat.
	allow shoreline protection by individual shore owners	"	1987-1991	E	Improves water quality through erosion protection.

STRATEGY

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
	• identify to all agencies key habitat areas as they are identified	"	1987-1991	N	Ensures fisheries habitat concerns are met.
	• liaise with Lands & Water staff to protect key habitat	"	1987-1991	E	Identifies to District staff areas of concern.
	• encourage community docking	"	1987-1991	E	Reduces loss of littoral area through numerous dredge and fill operations.
	• work with the Conservation Authorities and municipalities to develop a simple system to integrate MNR, Conservation Authority and Municipal interests in the approvals process for work in the water	"	1988-1991	N	Reduces loss of littoral area through numerous dredge and fill operations.
Enhance Lake St. Lawrence littoral zone	• emphasize wetland protection	"	1987-1991	E	Protects key spawning and nursery habitat.
	• discuss water level management with controlling agencies	LSL OTT	1987	E	Attacks the major problem facing Lake St. Lawrence habitat; the drawdown.
Protection of habitat in key tributaries	• place protection priorities on key streams and identify to all key agencies and adjacent landowners	"	1987-1991	N	Identifies priority areas for protection and ensures appropriate agencies and public are informed.
	• encourage landowner rehabilitation projects	"	1987-1991	E	Improves stream habitat on private land.
	• review all tributary management plans	"	1987-1991	E	Ensures fish habitat concerns are identified protected.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Identify and participate in resolution of negative water quality impacts	• establish with Ontario Ministry Environment fisheries-related water quality monitoring in key areas	"	1988-1991	N	Improves water quality with associated benefits to fish community.
	• participate in Remedial Action Plan	LSP	1987-1991	E	River-wide international commitment.
	• participate in IJC surveillance plan	LSP LSL	1987-1991	E	River-wide international commitment.
Improve access to resource	• improve 2 launch sites	OTT LSL	1990 1991	N N	Promotes access and increases angling opportunities to under-utilized waterbodies.
	• continue to work with the St. Lawrence Parks Commission to ensure angler access to shore, spring bullhead fishery	LSL	1987-1991	E	Maintains angling opportunities to under-utilized fishery.
	• encourage launch ramp development for Cornwall and Guindon Park	LSP	1989-1990	N	Promotes access to under-utilized section of the river.
Promote under-utilized species	• promote in all media communications under-utilized species	District-Wide	1987-1991	N	Public awareness program to redirect pressure from heavily exploited fisheries.
Establish seasonal fish sanctuaries at spawning sites	• create seasonal sanctuaries at all walleye spawning beds	"	1989-1991	N	Protects spawning stock at all vulnerable locations.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Increase sportfish recruitment to main reservoirs by identifying and rehabilitating streams	• create seasonal walleye sanctuary (April) at Hoople Creek and McIntyre's Rapids (Raisin River)	Hoople Creek Raisin River	1989-1990	N	Protects walleye spawning stock in vulnerable locations.
	• adjust bass season (last Saturday in June to November 30) Division 9, 11, 12.	LSF LSL OTT	1990	N	Protects spawning bass during late spawning seasons.
	• establish bass sanctuary at Hoasic Creek from May until bass season opening	Hoasic Creek	1988	N	Protects bass at vulnerable pre-season spawning locations.
	• adjust walleye season (March 15th closure) Division 11, Lake St. Francis and Division 9	LSL LSF	1990-1991	N	Protects spawning stock.
	• rehabilitate Hoasic Creek for walleye and smallmouth bass spawning	Hoasic Creek	1987	E	Increases recruitment through improved habitat.
Reduce exploitation of key species consistent with allowable yields	• initiate an experimental transfer of adult walleye	Hoasic Creek	1988-1989	N	Increase recruitment from new spawning area.
	• other rehabilitation and maintenance projects are described in Implementation Schedule B				
Re-establish trophy muskegunge fishery in Lake St. Lawrence	• regulate other species as required	District- Wide	1988-1991	E	Allows option to regulate fishery as required; not necessary at present.
	• increase minimum size limit to 102 cm and reduce creel limit to 1/day	LSF LSL	1987	E	Protects existing adult spawning stock (now in regulation).

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
	- Investigate feasibility of supplemental stocking - promote catch and release through public education - provide incentives to anglers to provide muskie catch data	LSL	1988	N	Increases recruitment to a decimated fishery.
		LSP	1987-1991	N	Reduces hooking mortality and protects existing stock.
		LSP	1989-1991	N	Provides data on existing stock.
Continue to operate the eel ladder for culture and fishway purposes	maintain current activities	LSP	1987-1991	E	Allows continued passage upstream to sustain eel population and supply eels for culture.
Provide a Native Food Fishery allocation	examine feasibility of aquaculture to meet subsistence demand	LSP	1988	N	Reduces pressure on wild stocks, and reduces user-conflict; provides contaminant-free fish.
	liaise with the Mohawk Council of Akwesasne to establish most efficient and environmentally sound harvest techniques	LSP	1987-1991	E	Protects wild stocks from incidental catch mortality and reduces user-group conflicts.
	work with the Council and MOE to ensure contaminant levels continue the decline	LSP	1987-1991	E	Provides cleaner, healthier fish stocks for all user-groups.
Establish a directed enforcement effort to reduce illegal harvests	maintain pre-season pike enforcement	District-Wide	1987-1991	E	Redirects enforcement to more critical problems.
	maintain spring walleye run enforcement	"	1987-1991	E	Protects spawning stock at vulnerable locations.
	increase pre-season bass angling enforcement by 1.0 months	"	1987-1991	N	Protects spawning stock at vulnerable period.

STRATEGY

TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
increase regular angler checks by 1.25 m months	"	1987-1991	E	Ensures compliance with regulations and increases MNR/public contacts. Including redirecting officers to high-priority waters (St. Lawrence River in summer; Ottawa River in winter)
maintain or enhance walleye watch program depending on level of interest in fish and game clubs	Raisin River Hoople Creek	1987-1991	E	Protects vulnerable spawning stocks and promotes public involvement.
increase habitat enforcement by 4.5 m months	District-Wide	1987-1991	N	Protects key habitat to ensure self-sustaining populations.
improve co-operative enforcement with Quebec and New York State	LSF LSL OTT	1987-1991	E	Makes enforcement more effective and efficient on boundary waters.
increase training, effectiveness, and participation in D.C.O. program. Limit D.C.O. program to internal staff	"	1987-1991	N	Increases and improves enforcement capabilities.
encourage Report-A-Poacher program	"	1987-1991	N	Public awareness campaign increase effectiveness of enforcement.
increase media coverage of fisheries convictions	"	1987-1991	E	May increase compliance with regulations.
speak to sentence for particular offences to increase judicial awareness of serious problems	"	1987-1991	N	Increases compliance with regulations.

Objective 2: Protect and enhance yellow perch populations in the St. Lawrence and Ottawa Rivers to provide 130,000 kg to the sport, commercial and subsistence fishery at the present angling quality standard. [Note - these strategies also contribute to maintaining some of the 152,000 angling opportunities of Objective 1.]

STRATEGY

TACTIC
YEAR(S)
N/E^a
ISSUE/PROBLEM
ADDRESSED

Maintain harvest of yellow perch in Lake St. Francis at the allowable yield	monitor perch populations on a 2-year rotation	LSF	1988, 1990	E	Detects changes in perch populations
	conduct major creel on a 5-year rotation	LSF	1988	N	Detects changes in angling pressure, success, harvest for yellow perch.
	co-operate with Quebec on joint management of yellow perch	LSF	1987-1991	E	Provides river-wide management; protects stock.
	licence commercial anglers as commercial fishermen once regulation banning sale of angler-caught fish is passed.	LSF	as required	N	Maintains the status quo in terms of harvest and participation; provides harvest data; maintains local supply; preserves commercial fishery; maintains limited angler sale.
	on a year-year basis provide 3 commercial hoop net fishermen with a 2000kg quota each for yellow perch via experimental permit. Allocation to be reviewed 1 year after commercial angling licence is implemented	LSF	1989	N	Provides for a small harvest of perch to help support the local commercial fish industry. total harvest of 6000 kg is approximately 5% of present angling harvest and as an interim measure will not stress perch unduly.
	eliminate sale of angler-caught perch	LSL OTT	1989	N	Controls harvest of yellow perch; pending change in Provincial Regulation.
	hold public consultation over yellow perch issue (now completed)	District-Wide	1987	N	Allow public input to decision process, public awareness increased.

STRATEGY

TACTIC

LOCATION

YEAR(S)

N/E^aISSUE/PROBLEM
ADDRESSED

Promote yellow perch fishery in other District waterbodies to reduce pressure on Lake St. Francis	reduce exploitation by introducing a spring season angling closure. Length of closure will depend on results of 1988 assessment program	LSF	as required	N	Protects yellow perch resource with minimum loss of angling opportunities. Is applied to all fishermen equitably. It is the most efficient way to prevent over harvest of perch.
	negotiate a subsistence allocation of perch with the Akwesasne Council of the Mohawk including methods, timing and location of harvest	LSF	1989	N	Ensures allocation of subsistence fishery within allowable yield. Depends upon contaminant levels in perch.
	pending the acquisition of creel census data (1988), index netting data (1988), the harvest reports of commercial anglers (1989-90) and negotiations of an Akwesasne subsistence fishery determine a final allocation of yellow perch in Lake St. Francis	LSF	1990-1991	N	Final allocation decision ensure over-harvest does not occur and perch stocks are fished at an optimal rate.
Reduce net loss of yellow perch habitat to zero	maintain all-year season and unlimited creel	District- Wide excluding Lake St. Francis	1987-1991	N	Reduces angling effort on Lake St. Francis yellow perch by redistributing angler effort.
	implement habitat protection and rehabilitation strategies outlined in Objective 1.	District- Wide	1987-1991	N	Provides general fish habitat protection.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Enhance enforcement efforts to reduce illegal yellow perch harvests	increase spring enforcement on illegal harvest by 1.0 man month	LSF	1987-1991	N	Protects adult spawning stock, increases recruitment, reduces conflicts.
	increase regular angler checks	LSF	1987-1991	E	Protects yellow perch stock and reduces user-group conflicts.
	continue to enforce the provision of the Fish Health Inspection Act	District-wide	1987-1991	E	Ensures quality of perch sold commercially remains high.
	Increase administration and enforcement effort because of implementation of Lake St. Francis yellow perch commercial angling licence. (this is also included under Objective 4)	LSF	As required	N	Will be required as a product of licencing commercial anglers to ensure harvest reports are accurate and it is also a legislative requirement for MNR when dealing with commercial fisheries.

Objective 3: Enhance and protect inland sport fisheries to meet the projected demand of 34,000 opportunities at the present angling quality standard.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Enhance Loch Garry largemouth bass fishery	• maintain pre-season bass enforcement checks	Loch Garry	1987-1991	E	Protects spawning stock and can increase spawning success.
	• establish May-June sanctuary at west end of lake if 1987 assessment program shows a recruitment problem	"	1990	N	Protects spawning largemouth bass from incidental catch.
	• encourage habitat rehabilitation by local clubs through CFIP	"	1987-1991	E	Improves habitat for bass and encourages public participation.
	• establish impounding gear assessment program and creel census program	"	1988	N	Monitors bass population, community balance and angler use.
	• improve access (boat launch) in co-operation with RRCA	"	1989	N	Increase angling opportunities.
Provide coldwater fishing opportunities at P.F.A.'s	• increase number of fish stocked to 7,000	2 PFA's	1987-1991	N/E	Increases coldwater angling opportunities.
	• maintain current level of maintenance	2 PFA's	1987-1991	E	Maintains socially acceptable fishing area.
	• stock both rainbow and brook trout annually	2 PFA's	1989-1991	E	Meets anglers' demands, dependant on supply of brook trout from private hatcheries.
Promote aquaculture by the private sector	• provide information and technical advice upon request	District-wide	1987-1991	E	Provides public service, promotes fish production inland.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Enhance, protect and rehabilitate key fisheries in inland rivers and streams	construct 2 boat access sites between Casselman and the Ottawa River	South Nation River	1990-1991	N	Creates angling opportunities in under-exploited area.
	promote best inland fishing areas on fishing brochure	District-Wide	1987	N	Public awareness may lead to greater angler opportunities.
	rehabilitate walleye spawning bed in the South Nation River at Crysler	South Nation River	1988	N	Creates better spawning habitat with benefits of increased recruitment.
	designate walleye sanctuaries at Crysler and Chesterville	"	1990	N	Protects walleye spawning stock at vulnerable locations.
	encourage MOE to impose better industrial effluent limits where appropriate	District-Wide	1988-1991	E	Stricter controls lead to better quality water and habitat.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Protect inland fisheries through enhanced enforcement	• concentrate assessment and rehabilitation on only unaltered streams	"	1987-1991	E	Protects and improves remaining natural habitat.
	• maintain pre-season bass angling enforcement	Loch Garry	1987-1991	E	Protects vulnerable spawning stock and improves recruitment.
	• maintain regular angler checks on inland fisheries	All Inland Waters	1987-1991	E	Ensures compliance with regulations and increases public awareness.
	• maintain walleye spawning run enforcement on the South Nation River	South Nation River	1987-1991	E	Protects vulnerable spawning stock improves recruitment.
	• maintain regular angler checks at the Provincial Fishing Areas	2 PFA's	1987-1991	E	Ensures compliance with regulations.
	• maintain aquaculture enforcement (i.e. audits of transfer permits, licences to propagate and sell fish and licences to operate a fishing preserves)	District- wide	1987-1991	E	Ensures compliance with regulations, protects native stocks and fish communities.

Objective 4: Maintain the viability of the local commercial food fishery and meet the target of 171,000 kg of fish.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Maintain Lake St. Francis bullhead/sunfish harvests within allowable yields	- maintain number of commercial harvesters and species harvest quotas - encourage harvest of under-utilized species by population assessment, maintaining quotas and finding new markets	LSF	1987-1991	E	Prevents increase in commercial harvest.
Increase commercial harvest of bullhead/sunfish, District-wide	- continue one fall experimental permit for Lake St. Lawrence - increase commercial bullhead quotas - expand licencing of commercial coarse fish harvesters	LSL LSL-5,000kg OTT-10,000kg	1987-1991 1988	E N	Provides economic benefits to harvesters and benefits to fish community balance. Utilizes under-exploited fishery, with economic benefits to harvesters. Utilizes under-exploited fisheries with economic benefits to harvesters.
Protect existing sturgeon stock from commercial harvest	- review catch data and reduce quota and raise size limit to 71 cm if required - establish sturgeon management committee with Quebec, Ontario and New York	OTT LSL	1988-1991 1989	N	Utilizes under-exploited fishery; benefits to fish community balance; economic income to local operator. Prevents harvest of immature fish; protects remaining stock. River-wide management is essential to success.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Increase District harvest of carp and suckers	• licence one additional commercial carp harvester	SL	1988	N	Utilizes under-exploited species with benefits to local harvester and sport fish community.
	• encourage existing operators to harvest carp/suckers heavily by establishing or maintaining unlimited quotas	District-Wide	1987-1991	E	Permits maximum harvest as market demands, benefits to sport fish communities.
	• maintain current commercial fish enforcement administration	"	1987-1991	E	Maintain industry and ensure compliance with regulation.
Maintain commercial fish administration	• increase enforcement and administration efforts on the new yellow perch licensing system	LSF	1989-1991	N	Ensure compliance with new regulations.
Promote commercial aquaculture for consumptive uses	• continue monitoring eel culture and investigate feasibility of local aquaculture	District-Wide	1987-1991	N	Provides contaminant-free fish for available markets.
Monitor contaminant levels in commercial fish species	• expand contaminant sampling of commercial fish to include eels and sturgeon	LSF OTT	1988-1991	E	Provides necessary information for market sales.
	• improve communications with the Department of Fisheries and Oceans contaminant testing branch	District-wide	1987-1991	E	Improves management of contaminated fisheries.
Improve commercial fish marketing	• restrict new entrants to commercial fishery	LSF	1987-1991	E	Prevents overharvesting while maintaining supply.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
	• assess as part of index netting program, the commercial potential of under-utilized species	LSF LSL OTT	1987-1991	E	Identifies new species for commercial harvest.
Increase public awareness of the District commercial fishery to resolve user-group conflicts on the District fisheries	• host an annual meeting of all special interest groups on the District fisheries	District-Wide	1988-1991	N	Helps to resolve user-conflicts through communication and education.
	• produce pamphlet on the District commercial fishery	"	1990	N	Helps to resolve user-conflicts through public education.
Reduce user-group conflicts in the field	• MNR act as an arbitrator during user-group conflicts • maintain current commercial modernization strategy	"	1987-1991 1988-1992	E E	Provides public service as agency responsible for fisheries resources. Follows provincial guidelines.
	• increase enforcement contacts with commercial harvesters by .25 man-months	District-Wide	1987-1991	N	Provides more data on harvests and industry trends.
Establish yellow perch allocations to commercial hoop-net fisheries	• maintain present yellow perch commercial fishing quota in the Ottawa River • retain a zero yellow perch quota for commercial fishermen in Lake St. Lawrence	OTT LSL	1987-1991 1987-1991	E E	Low quotas provide some commercial fishing at a level which does not conflict with sport angling. The low production of Lake St. Lawrence perch stocks is efficiently allocated to anglers.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
	allocate a 2000 kg quota to each of 3 commercial hoop-net fishermen on an annually renewable basis on an interim basis. Fishing to be done summer or fall	LSP	1988-1989	N	Provides a 5% interim allocation of the harvest to help maintain viability of commercial hoop-net fishery. Summer, fall fishery prevents any conflicts during the spring.
	pending the acquisition of creel census data (1988), index netting data (1988), the harvest reports of commercial anglers (1989-90) and negotiations of an Akwesasne subsistence fishery determine a final allocation of yellow perch in Lake St. Francis	LSP	1990-1991	N	Final allocation decision ensure over-harvest does not occur and perch stocks are fished at an optional rate.

Objective 5: Increase the district production of baitfish to meet the target of 62,000 dozen by the year 2000.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Prevent local baitfish overharvesting	• restrict new entrants to the baitfish harvesting industry	District-Wide	1987-1991	E	Limits pressure on existing baitfish populations.
	• establish exclusive block system of licensing for particular waterbodies	"	1990	N	Prevents overharvesting from key baitfish areas and maintains supply.
	• increase baitfish enforcement by 0.25 man months	"	1987-1991	N	Provides more accurate harvest estimates, identifies demands and enforces regulations.
Improve baitfish harvest estimates	• establish local standards for reporting baitfish harvests	"	1988	N	Provides more accurate harvest information.
Promote commercial baitfish aquaculture	• maintain current baitfish administration (including monitoring of harvest through annual returns)	"	1987-1991	E	Maintains viable industry.
	• encourage baitfish culture through private pond inquiries and extension services in co-operation with OMAF	"	1987-1991	E	Increases public awareness, may help meet seasonal demands.
Develop new baitfish techniques	• inform harvesters of developments in baitfish handling and transportation	"	1987-1991	N	Increases awareness and may help meet seasonal demand.

Objective 6: Prevent the extinction of any native fish species.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E ^a	ISSUE/PROBLEM ADDRESSED
Protect lake sturgeon in the St. Lawrence River	• close the angling season on the St. Lawrence River	LSL LSP	1990	N	Protects lake sturgeon from incidental harvest.
	• continue to prohibit commercial harvest of sturgeon in the St. Lawrence	LSL LSP	1987-1991	E	Continues to protect sturgeon.
	• co-operate with the Mohawk Council of Akwesasne in promoting conservative sturgeon subsistence harvesting	LSL LSP	1987-1991	N	Addresses harvest by the Mohawk Council of Akwesasne.
Protect river herring as required	• enforce existing legislation pertaining to habitat protection	OTT	1987-1991	E	Meets intent of strategy.
	• continue to document occurrence and status	OTT	1987-1991	E	Meets intent of strategy.
Protect rare and threatened species and their habitat as these species are identified in local waters	• monitor status of rare/threatened species where possible within existing programs	District-Wide	1987-1991	E	Meets intent of strategy.
	• enforce existing legislation pertaining to habitat protection	District-Wide	1987-1991	E	Meets intent of strategy.

IMPLEMENTATION SCHEDULE B TACTICS TO BE IMPLEMENTED, 1987-1991, WITH ADDITIONAL STAFF AND FUNDING

Objective 1: For the St. Lawrence and Ottawa Rivers' sport fisheries; enhance and protect the warmwater fisheries to meet the projected demand (target) of 152,000 angling opportunities while maintaining the present angling quality.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E	ISSUE/PROBLEM ADDRESSED
Establish warmwater assessment programs on the three major reservoirs	• expand annual commercial LSF catch sampling on major species	LSF LSL OTT	1987-1991	E	Detects changes in commercial species abundance and community shift.
	• littoral zone impounding gear assessment	LSF	1989, 1991	N	Assesses species important to anglers not assessed well by index gill netting
	• implement muskellunge spawning site identification program	LSF LSL	1989-1991	N	Identifies area requiring protection and areas for the potential collection of brood stock
	• implement yoy assessment as per St. Lawrence River Fisheries Management Unit Operating Plan (supplement to yoy assessment in Schedule A).	LSF LSL	1989-1991	N	Provides indices of abundance which reflect changes in recruitment. These changes will drive management actions.
Increase public co-operation in local fisheries management	• deliver CFIP program	District-wide	1988-1991	E	Allows field delivery of a bigger program.
Increase public education of fisheries management	• provide fisheries extension service	LSF LSL	1987-1991	E	Allows field delivery of a bigger program.
Reduce negative impacts of contaminants on fish species	• initiate area specific contaminant sampling program for Cornwall area	LSF LSL	1988-1991	N	Provides specific site trends.

LSF - Lake St. Francis
LSL - Lake St. Lawrence
OTT - Ottawa River

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E	ISSUE/PROBLEM ADDRESSED
Reduce net loss of littoral zone fish habitat in the major reservoirs to zero	encourage littoral zone rehabilitation	"	1988-1991	N	Rehabilitate areas which have been lost to fish production.
Enhance Lake St. Lawrence littoral zone	- initiate Long Sault Parkway Impoundment Feasibility Study - initiate smallmouth bass shoal spawning bed rehabilitation by placement of material in shallow spawning areas. - initiate water level management feasibility studies in small bays to improve fish production - experimental planting of cover vegetation in drawdown zone - establish artificial cover below drawdown zone	LSL	1987-1988	N	Increase fish production through major habitat improvement.
		LSL	1989-1991	N	Improves recruitment of smallmouth bass
		LSL	1990-1991	N	Reduces impact of draw down on fish production
		LSL	1990	N	Increases fish production by improving nursery habitat lost to drawdowns.
		LSL OTT	1990	N	Increase fish production by improving habitat impacted by drawdowns.
Protection of habitat in key tributaries	- identify and assess key streams - undertake in-house rehabilitation projects based on assessment tactic (above)	District-wide	1987-1991	N	Ensures protection of key spawning and nursery habitat.
		"	1987-1991	E	Increase fish production with improved habitat.
Increase sportfish recruitment to main reservoirs by identifying and rehabilitating streams	implement spring hoop netting program on 8 tributaries to identify spawning streams	OTT	1988-1991	N	Detects key tributaries for sportfish recruitment.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E	ISSUE/PROBLEM ADDRESSED
Establish a directed enforcement effort to reduce illegal harvests	• continue walleye spawning bed rehabilitation and maintenance program	Raisin River Hoople Creek	1987-1991	E	Increase recruitment through improved habitat.
	• assess, for rehabili- tation purposes, walleye beds at Plantagenet and Casselman and Crysler	South Nation River	1987, 1990	N	Identifies ways to increase walleye recruitment.
	• improve staff awareness of fish habitat concerns	LSF LSL OTT	1987-1991	N	More effective enforcement.

Objective 2: Protect and enhance yellow perch populations in the St. Lawrence and Ottawa Rivers to provide 130,000 kg to the sport, commercial and subsistence fishery at the present angling quality standard.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E	ISSUE/PROBLEM ADDRESSED
Maintain harvest of yellow perch in lake St. Francis at the allowable yield	Implement yellow perch young-of-the-year assessment program	LSF	1988-1991	N	Monitors yellow perch abundance before year class enters angling fishery.
Reduce loss of key yellow perch habitat to zero in Lake St. Francis	Increase yellow perch habitat enforcement by 2.0 man months and contact all landowners and agencies who manage or are adjacent to key yellow perch spawning areas as described by habitat model	LSF	1987-1991	N	Protects key spawning habitat through public awareness and enforcement protection.
Enhance enforcement efforts to reduce illegal yellow perch harvests	- Investigate effects of Seaway shipping waves and follow up with appropriate measures - Increase spring enforcement of illegal harvest by 0.5 man-months	LSF	1988 1988-1991	N N	Increases yellow perch recruitment if spawning success is increased. Would prevent illegal harvest to some degree.

Objective 3: Enhance and protect inland sport fisheries to meet the projected demand of 34, 000 opportunities at the present angling quality standard.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E	ISSUE/PROBLEM ADDRESSED
Protect inland fisheries through enhanced enforcement directions	• increase habitat enforcement inland by 1.5 man-months	"	1987-1991	N	Protects valuable fish habitat.

Objective 4: Maintain the viability of the local commercial food fishery and meet the target of 171,010 kg of fish.

STRATEGY	TACTIC	LOCATION	YEAR(S)	N/E	ISSUE/PROBLEM ADDRESSED
Monitor commercial fish harvests	. expand commercial fish sampling program	OTT LSF SLS	1989-1991	N	Detects changes in harvests and fish communities.

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REFERENCES

- Bedi, N. and P. Clifford, 1980. 1980 Surveys of Ontario's Resident and Non-Resident Sport Fishermen. Ontario Ministry of Natural Resources, Fisheries Branch, Toronto, 149 p. and appendices.
- Eckersley, M., R. Cholmondeley and A. Dolan, 1986. Cornwall District Fisheries Management Plan, Background Information, unpublished document, Ontario Ministry of Natural Resources, Cornwall District. 140 p. and appendices.
- Eckersley, M., 1987. Draft Cornwall District Fisheries Management Plan. Ontario Ministry of Natural Resources, Cornwall District. 45 p.
- Eckersley, M. 1988. A Summary of Public Consultation - Cornwall District Fisheries Management Plan. Ontario Ministry of Natural Resources. Cornwall District. 70 p.
- Ontario Ministry of Natural Resources, 1982. Southern Ontario Co-Ordinated Program Strategy, Policy and Planning Guidelines, Queen's Park, Toronto.
- Ontario Ministry of Natural Resources, Cornwall District Land Use Guidelines 1983. Ontario Ministry of Natural Resources, Cornwall District, 52 p.
- Ontario Ministry of Natural Resources, 1986. A Framework for Resource Management Planning in MNR. Planning Guidelines prepared by Policy and Planning Secretariat, Queen's Park, Toronto.
- Ontario Ministry of Natural Resources, 1986. District Fisheries Management Plans, Planning Manual. Queen's Park, Toronto. 90 p.

Ontario Ministry of Natural Resources, 1987. A Summary of Background Information and Optional Management Strategies and Tactics, Cornwall District. Cornwall District planning document. 91 p.

GLOSSARY

ANGLING OPPORTUNITY

A measure of supply to indicate the amount of use which a resource can sustain. An angling opportunity may be defined as one fishing trip not exceeding one day and usually averaging four hours in length.

ANGLING QUALITY STANDARD

The minimum number of fish which could be expected to be caught by an angler during an average fishing trip to guarantee a satisfactory recreational experience. This standard may be expressed in fish per hour or kilograms per angler day.

ARTIFICIAL FISHERY

A fishery which is maintained entirely through plantings of hatchery reared fish in order to provide angling opportunities.

BAITFISH

Any member of the minnow family Cyprinidae, except carp and goldfish; the mudminnow family Umbridae; the stickleback family Gasterosteidae; the trout-perch family Percopsidae; the sculpin family Cottidae; the genus *Leucichthys* of the whitefish family Coregonidae and the darter sub family Etheostomatinae.

COARSE FISH

Fish species which are not normally sought by recreational anglers. This commonly includes fish from the families Catostomidae (suckers), Ictaluridae (catfish), Gadidae (cods) and Sciaenidae (drums).

COLDWATER FISH COMMUNITY

Fish populations comprised primarily of the families salmonidae (trout, salmon and whitefish), Gadidae (burbot) and Clupeidae (herrings).

COMMERCIAL FISH

Commercial fish refers to those species captured, under authority of a licence, and marketed for human consumption. The most

common commercial fish species in the Ottawa and St. Lawrence Rivers include carp, bullheads, channel catfish, American eels, white sucker and yellow perch.

CREEL SURVEY

A technique for enumerating and interviewing anglers to obtain information concerning fishing pressure, angler success, fish harvests and biological characteristics of angled fish.

CURRENT FISHERIES YIELD

The current fisheries yield expresses the yield under existing circumstances given that, due to the presence of some underproducing waters, the total potential fisheries yield is currently not being realized.

EXOTIC FISH SPECIES

A fish species which is neither native nor has become naturalized or self sustaining in waters within the Province of Ontario.

FISH COMMUNITY

A combination of different fish species living and interacting together in the same body of water.

INDIGENOUS FISH SPECIES

A fish species which occurs naturally in a waterbody.

NATURALIZED FISH SPECIES

A fish species which was not indigenous to a particular waterbody but was introduced and has become established through natural reproduction.

NON-RESIDENT

An angler whose principle residence is outside the province of Ontario.

OBJECTIVE

A quantifiable and attainable end which is to be achieved.

7

PACIFIC SALMON

Pacific salmon includes coho salmon, chinook salmon, kokanee salmon, pink salmon and any member of the genus *Oncorhynchus*.

PANFISH

A group of secondary predator fishes comprised of species such as yellow perch, bluegill, pumpkinseed, rockbass and black crappie.

POTENTIAL YIELD

The theoretical maximum yield that can be taken annually without exhausting the compensatory reserve of a fish community. The term is analogous to maximum sustainable yield, maximum equilibrium yield, theoretical yield and allowable yield.

PROJECTED YIELD

The projected yield represents the estimated fisheries yield at the year 2000 and is based upon changes in fish stocks as well as realizing a proportion of the potential yield from waters currently rated as under-producing.

PULSE FISHING

A harvest technique for commercial food fisheries and bait fisheries whereby a waterbody is exploited in only one of several years on a regular basis.

REMEDIAL ACTION PLAN

A multiagency plan aimed at the identification, definition and mitigation of a large scale environmental problem.

RESIDENT

An angler whose principle residence is in Ontario. A local resident angler would be one who can fish an area on a day-use basis, i.e. travel to the area, fish, and return home on the same day.

SLOT SIZE LIMIT

A size limit which permits an angler to keep fish above a maximum size and below a minimum size, but requires the live release of all fish within the slot definition.

SOUTHERN ONTARIO

The southern Ontario planning region includes the following districts: Algonquin Park, Aylmer, Bancroft, Bracebridge, Brockville, Cambridge, Carleton Place, Chatham, Cornwall, Huronia, Lindsay, Maple, Minden, Napanee, Niagara, Owen Sound, Parry Sound, Pembroke, Simcoe, Tweed and Wingham.

SPORT FISH

Top predator fish species which are sought and may legally be taken by angling. In eastern Ontario this usually includes fish from the families Salmonidae (trout and salmon), Percidae (walleye and perch), Esocidae (pike and muskellunge) and Centrarchidae (basses).

STOCK

A species group or population of fish which maintains and sustains itself over time and may be identified by distinct genotypic characteristics.

STRATEGY

Planned actions or measures designed to achieve a desired end.

TACTIC

A specified method designed to achieve one or more strategies.

TARGET

A quantified end to be achieved or completed by a specific date.

UNDER-PRODUCING WATERS

Lakes and/or streams which, for some reason, have been withdrawn from fish production or are not producing at their estimated biological potential.

WARMWATER FISH COMMUNITY

Fish populations comprised primarily of the family Centrarchidae (basses), Esocidae (pike and muskellunge) and Percidae (walleye and yellow perch).

VIEWING OPPORTUNITY

A measure of recreation supply utilized to describe the number of times a resource or facility can be used for viewing in a given time period. A viewing opportunity is considered not to be greater than one day.

APPENDIX I

A LIST OF FISHERIES MANAGEMENT PLANNING DOCUMENTS - CORNWALL DISTRICT

The following is a list of the documents prepared during the planning process, their content and purpose.

DOCUMENT	DATE PREPARED	PURPOSE
1. Background Information and Optional Management Strategies and Tactics - Cornwall District Fisheries Management Plan (300 pages)	1985-1986	Detailed information on all fisheries resources, their use, management issues and potential management strategies and tactics. Retained at district office. Available for public scrutiny.
2. Summary of Background Information and Optional Management Strategies and Tactics - Cornwall District Fisheries Management Plan (90 pages)	January 1987	A summary of document #1. Used to solicit public comment on issues and potential management strategies and tactics. Includes a questionnaire. Two hundred and fifty distributed to mailing list and at public meeting (Feb. 11/87).
3. Plan de Gestion Des peches de District - District de Cornwall Sommaire du Resume des Renseignements Generaux des Strategies de Gestion Facultatatives et des Mesures (10 pages)	January 1987	French language abstract of Document #2. A total of 50 printed, only 1 distributed. Available at first public meeting (Feb. 11/87).

4. Summary of Identification and Evaluation of Management Options (59 pages)	March 1987	A table showing all the potential management strategies and tactics including all public input received during Phase 1 of public consultation. The table shows the evaluation of all tactics and was used as the basis for tactics selected for the draft plan.
5. Public responses to the Background Summary and Optional Management Strategies and Tactics - A Summary (6 pages)	March 1987	Summarizes all public input from Phase 1 public consultation. Published as Appendices 1, 2 and 3 in the draft plan document.
6. Draft District Fisheries Management Plan - Cornwall District (66 pages)	July 1987	First draft of fisheries management plan. Distributed to all agencies, clubs and interest groups for Phase 2 public consultation. Contains proposed fisheries management program 1987-2000. One hundred printed; 95 distributed.
7. Propositions de l'ébauche du plan de gestion des pêches du district de Cornwall - Resume (24 pages)	July 1987	French language abstract of Document #6.
8. Draft District Fisheries Management Plan - Cornwall - A Tabloid (8 pages)	August 1987	A tabloid highlighting the draft plan. Includes questionnaire. Used for major public review of draft plan; 2,500 printed, 2,300 distributed to all agencies, groups and general public.

9. Evaluation of Phase 2 public consultation results - comments on draft plan (20 pages)	Dec. 1987	Shows results of public consultation including response rates, new suggestions and the MNR action and rationale for selecting or not selecting the tactics proposed in the draft plan.
10. Draft proposal - Management of yellow perch in Lake St. Francis (5 pages)	March 1988	Five-page proposal used to outline yellow perch management tactics for Phase 3 of public consultation. Includes a 2-page questionnaire for public response.
11. Evaluation of public consultation - Phase 3 - yellow perch management in Lake St. Francis	August 1988	Shows evaluation of public input on proposals for yellow perch management in Lake St. Francis (Phase 3 of public consultation).
12. Cornwall District Fisheries Management Plan - 1987-2000	Oct. 1988	Final district fisheries management plan. Distributed to all people requesting a copy (300 plus).
13. Plan de gestion des peches du district de Cornwall - 1987-2000	Oct. 1988	French language abstract of Document #12.

APPENDIX 2

HIGHLIGHTS OF PUBLIC CONSULTATION - CORNWALL DISTRICT FISHERIES MANAGEMENT PLAN

Purpose of public consultation

The overriding objective of the public consultation process was to provide the opportunity for all interested parties to participate in the development of the plan to the extent they desired. This would accomplish three things: it would, at the minimum, provide a new level of knowledge regarding the local fisheries management program to the public; it would allow all interested parties to evaluate and respond to the proposed management program in a fashion which guaranteed that MNR would examine and evaluate all input; finally, it would ensure that all appropriate comments were incorporated into the plan. The documentation of public input has been done in such a way that input can be traced from its reception to its ultimate destination (i.e. inclusion in or exclusion from the final plan).

Public consultation is seen as an ongoing process in fisheries planning. Rounds of public consultation will be held at every 5-year review of the Plan or if major changes are proposed.

1.2 Public Consultation Process

The process was started in November, 1986, with the distribution of a news release to all media indicating the Fisheries Management Planning Process was underway.

In January, 1987, an initial mailing list was prepared. A total of 143 mailings were made to all municipalities, fish and game clubs, commercial fishermen, baitfishermen, government agencies, conservation authorities, MPs, MPPs, the Akwesasne, tourism facilities and groups, various media and the OFAH. The initial mailing consisted of an invitation to participate in the planning process.

The February 11th public meeting in Cornwall was attended by approximately 160 people. A total of 250 Background Summary Documents were distributed, including 1 French language abstract.

Comments were solicited in several ways. The Background Summary included a questionnaire/comment sheet which individuals could fill in and return. Questionnaires were also handed out at

the meeting. A total of 350 questionnaires were distributed. A record was kept of all comments made during the formal and informal question period. Comments were also accepted verbally or in writing at the District Office for several weeks after the meeting.

Meetings were also held (at their request) with a variety of angling interests in Lancaster and with the Glendale Fish and Game Club. Ministry of Tourism and Recreation staff were briefed (at their request). A meeting was held with the Mohawk of Akwesasne on March 2nd, 1987, to discuss the management plan.

The second phase of public consultation began following the preparation of the draft fisheries management plan in July-August, 1987. A tabloid was prepared which outlined the specific fisheries management proposals and contained a specific questionnaire on each proposed tactic. Twenty-five hundred tabloids were printed and twenty-three hundred were distributed. Distribution included the mailing list (which now numbered 199), area licence issuers, outdoor equipment stores, fish and game club meetings and the 2 public meetings in October. Responses were invited to these questionnaires.

One public meeting was held in Hawkesbury (October 22nd) and one in Cornwall (October 23rd). Attendance in Hawkesbury was 39, in Cornwall 126. A record of all responses was kept for analysis. Copies of the draft fisheries management plan were available at the meeting and additional copies were mailed to various people on the mailing list. Further to these meetings, a meeting was held on December 16, 1987, with the Akwesasne to discuss the draft plan. This meeting resulted in the receipt of a "Position Paper" from the Akwesasne on March 17, 1988.

All public comment was analyzed and evaluated: where appropriate it was included in the final plan.

During the second phase, it became apparent that the yellow perch issue in Lake St. Francis was a major focus of public concern and that further public consultation was desirable. On March 25th, MNR initiated a meeting with a number of key users to discuss the new proposal. Representatives of fish and game clubs, restaurants, marinas, commercial hoop net fishermen and commercial anglers were invited to a meeting during which the proposal was discussed and their comments solicited.

On March 30th, a public meeting was held at which the new perch management proposal was discussed. Approximately 300 people attended the meeting and after a formal presentation by OMNR, they formally commented on the proposal. Four hundred

7

questionnaires were distributed at the meeting and responses were requested by the end of April 1988. News coverage of the meeting was extensive.

Following this meeting, the Town of Alexandria passed a resolution indicating non-support for the MNR proposal and this was accompanied by correspondence with the Minister. It was apparent that there were some misconceptions regarding our proposal which district staff attempted to clear up by talking to the media, writing a letter to all municipalities addressing the Alexandria resolution and appearing before the Raisin Region Conservation Authority Board (made up of representatives from local municipalities) on September 8, 1988, and the Town of Alexandria Council (Oct. 4, 1988) to answer questions related to the proposal.

It is expected that some 300 plans will be mailed out initially; some 150 will be held to deal with public requests.

A Summary of Responses

The raw data are all stored in 4 public consultation binders at the Cornwall district office. Binder #1 contains all media advertising, news releases and newspaper clippings as well as the mailing lists used throughout public consultation. Binder #2 contains all correspondence, the public information documents, the questionnaires, meeting minutes and the summary for Phase 1 of public consultation. Binder #3 contains the correspondence, public information documents, meeting minutes and summaries related to phases 2 and 3 of public consultation. Binder #4 contains the questionnaires returned during Phases 2 and 3.

At the end of each phase and prior to preparing the next planning document, public comment was summarized in tabular form. The questionnaires and minutes of the public meetings were the major source of comments (more than 95% of all input came from these sources). All tactics were then evaluated based on a number of criteria (i.e. feasibility, legality, cost, effectiveness) as well as public reaction to the proposal. Based on this evaluation, strategies and tactics were selected for the plan.

These binders are available for inspection at the Cornwall District Office. A "Summary of Public Consultation, district fisheries Management Plan, 1987-2000, Cornwall District" is also available from the district office.

During Phase 1, responses were solicited to the document "Summary of Background Information and Optional Management Strategies and Tactics", a precis of which was presented at the first public meeting. A total of 37 responses were received from the various government agencies, groups and members of the public. Twenty-three issues were identified during this process none of which were "new", i.e. not included in the Summary document.

During Phase 2 of public consultation, responses were solicited to a tabloid "Cornwall District Fisheries Plan" which presented the information contained in the Draft District Fisheries Management Plan. The questionnaire included in this tabloid requested an "agree", "disagree", "no comment" response for each of 74 specific strategies or tactics. A total of 138 tactics were included in the draft plan but for the sake of space on the questionnaire, similar tactics were grouped under one general tactic in the tabloid. In this way public input was solicited on virtually every tactic in the draft plan.

A total of 158 responses were received (Table 1). Of these, 80 were questionnaires, 4 were written letters and 74 were comments or questions received at the 2 public meetings. Of the 80 questionnaires, 48 contained additional comments. All comments were assigned to the appropriate strategy or tactic and summarized.

Additional public input was sought strictly on the yellow perch issue because the public review during Phase 2 provided some legitimate concerns regarding MNR's proposed management approach. Consequently, MNR revised the management proposals for yellow perch and conducted another round of public consultation. This resulted in the attendance of approximately 300 people at a public meeting in Cornwall with 46 recorded comments, the return of 74 questionnaires of which 66 contained additional comments, and 17 other responses many of which were generated at a user group meeting hosted by MNR prior to the public meeting. An additional 8 comments were received from municipalities. The Town of Alexandria passed a resolution indicating they did not support commercial angling or a commercial hoop net quota and they supported a season closure during spawning and a daily creel limit of 35 fish. This resolution was circulated to all municipalities in the area and 7 others wrote to MNR indicating their support for this resolution.

In summary, the public consultation was fairly effective. Almost 3,000 public documents, as well as more than 3,000 questionnaires were circulated during the public consultation process. Six hundred and twenty-five people attended the public meetings, 7 meetings were held with interest groups and a mailing list of almost 200 agencies, groups and individuals was developed. A total of 332 responses were received, more than half of which were written.

A Summary of Major Issues Identified

There were several major issues which were raised throughout the public consultation process. Aspects of yellow perch management including commercial angling, illegal harvest, netting by the Akwesasne, the allocation of a yellow perch quota to the commercial hoop net fishery, habitat protection and a spring season closure were all major issues. Underlying these issues was the concern that the yellow perch fishery and population are declining. The broad public opinion that the perch need more protection was reflected by the lack of public support for any allocation of perch to the commercial hoop net fishery. This position was not held by the executives of the various fish and game clubs present at the March 25th, 1988, user group meeting. The various perch protection measures (season

closure, habitat protection, reduction of illegal harvest) were, however, almost universally supported. There was a great deal of public concern regarding the seining of perch in the spring by the Akwesasne.

There was some public opposition to the commercial angling proposal evidently based to a large degree on the opinions held by anglers that this proposal was a ploy to generate tax revenue and that this fishery was not really a commercial fishery which required licencing.

Other major issues identified included conflicts between commercial fishing and sport angling, the illegal harvest of sport fish, water quality and fish habitat concerns, the proposed season changes for walleye and bass, and the district stocking approach. Minor issues included access, management of the PFAs, public education, inter-agency co-ordination, inland fisheries and aquatic weeds.

The commercial fishing issues became larger as public consultation proceeded. There was a large degree of concern expressed by anglers in Lake St. Francis and the Ottawa River that commercial fisheries were depleting sport fish populations through incidental catch and were affecting the bullhead and panfish angling fisheries as well. Conflict in the spring over the location of nets near tributaries was also a concern. Many anglers were of the opinion that commercial fishing should not be allowed.

Inclusion of Public Input in the Fisheries Management Plan

During Phase 1, 23 issues were identified by the public and a total of 84 tactics were proposed. Of these, 50 were either already in the menu of proposed optional management strategies and tactics or were added to the draft plan.

During the review of the draft plan, a total of 113 new or revised tactics were proposed by the public of which 29 were incorporated into the final plan. An additional 5 of the 75 tactics proposed by MNR were modified or dropped as a result of the public review.

During the yellow perch public consultation, the public provided 42 new or revised tactics of which 10 were incorporated into the final plan.

In general, however, the incorporation of public input fell into two categories. The first category consisted of issues which were easily solved by incorporating the public suggestions

into the plan. The great public support for the bulk of the draft plan illustrates the effective way in which many of these issues were handled.

The second category of issues included ones such as the yellow perch and commercial fish issues which were not as easily resolved. The yellow perch management proposal was modified based on all three rounds of public consultation. The major changes were the dropping of the proposal to set a limit and quota on commercial angling licences, the inclusion of a spring season closure to control harvest instead and the inclusion of an interim allocation of 6,000 kg to the hoop net fishery. A final allocation decision will be made once the size of the commercial angling fishery has been determined rather than establishing the allocations now. There was therefore a fairly substantial change in the proposed implementation of this program. There is still a degree of public opposition to this final approach.

The management direction for commercial fishing was not altered substantially as MNR has opted to reduce conflict rather than eliminating commercial fishing. There is a large public awareness challenge in attempting to reduce these conflicts.

TABLE 1: Summary of Response Origin During Public Consultation

TYPE OF RESPONDENTS	PHASE 1 (Background Summary)	PHASE 2 (Draft Plan)	PHASE 3 (Yellow Perch Issue)	TOTAL
Mailing List	143	199	189	530
No. of Background Documents Distributed	250	2,300 tabloids; 100 draft plans	200	2850
No. of Questionnaires Distributed	350	2300	400	3050
Public Meetings ^a	160	165	300	625
Meetings with Interest Groups	3	1	3	7
Recorded Responses				
- Public Meetings ^b	13	74	46	133
- Questionnaires	17	80	74	171
- Other ^c	7	4	17	28
- Total	37	158	137	332
Response by Group				
- Government Agencies	3	2	0	5
- Municipalities	0	0	8	8
- Local MRS/MPPs	1	0	1	2
- General Public	26	75	72	173
- User Groups				
- Fish and Game Clubs	6	4	6	16
- Commercial Fish	1	2	2	5
- Anglers	0	1	0	1
- Others	0	0	2	2
- Total	7	7	10	24
Total Responses (by type) ^d	37	84	91	212
Total Responses ^e (by type plus public meeting comments)	37	158	137	332

a) attendance at public meetings

b) comments recorded in minutes

c) letters and verbal conversations

d) total responses which could be broken down by type

e) includes "d" plus comments at public meetings which were not attributable

TABLE 2: Mailing List Constituents - Public Consultation

TYPE OF CLIENT	PHASE 1 (Background Summary)	PHASE 2 (Draft Plan)	PHASE 3 (Yellow Perch Issue)
Municipalities	43	43	43
Provincial & Federal Members	5	5	5
Government Agencies ^a	9	14	14
Fish and Game Clubs ^b	18	19	23
Indian Band	1	1	1
Tourist Associations	2	2	2
Commercial Fishermen ^c	7	8	8
Marina Operators	2	2	2
Baitfish Dealers/Harvesters	40	44	32
Outdoor Writers	2	2	2
General Public	14	59	57
TOTAL ^d	143	199	189

a) includes OMOE, OMTR, OMAF, SLPC, Conservation Authorities, Ontario Hydro and Fisheries & Oceans Canada

b) includes OFAH

c) includes OFPA

d) does not include the news release mailing to approximately 25 media (newspaper, radio, TV)

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